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THE

VETERINARY BULLETIN

Vol. 22] September, 1952 [No. 9

DISEASES CAUSED BY BACTERIA AND FUNGI

RICHOU, R., GERBEAUX, CL. & SCHLAEPFER, J. (1951). Étude de la sensibilité, à divers antibiotiques, des staphylocoques isolés de la mamelle de la vache. [**Sensitivity to antibiotics of staphylococci isolated from cases of bovine mastitis.**—*Rev. Path. comp.* **51,** 406-410. **2698**

Strains of staphylococci were sufficiently sensitive to each antibiotic tested viz.:- penicillin, streptomycin, chloromycetin, aureomycin and terramycin to suggest that they might usefully be employed in the treatment of mastitis. —R. MARSHALL.

LESKOWITZ, S., FOX, C. L., JR. & RAYMOND, S. (1952). **The isolation and identification of para-aminobenzoic acid produced by staphylococci resistant to sulfonamide.**—*J. exp. Med.* **95,** 247-250. [Abst. from authors' summary and conclusions.] **2699**

An attempt was made to identify an antisulphonamide substance, produced in the growth medium when *Staph. aureus* becomes resistant to sulphonamides, which appeared to be *p*-aminobenzoic acid (PABA).

A strain of *Staph. aureus* resistant to sulphonamides was cultivated on a simplified medium, the organisms separated in a centrifuge and the diazotizable amine absorbed and finally extracted with ether at pH 3·7. Paper chromatography revealed an amine resembling PABA and its spectrum in the ultraviolet corresponded with that obtained with PABA. A 2, 4-dinitrophenyl derivative of the amine was prepared and the m.p. was similar to that of the derivative made from PABA. On the basis of the physical and chemical properties described, it would appear unequivocal that this bacterial amine is PABA.

TORRES, C. M., PACHECO, G. & CARDOSO, R. A. DE A. (1949). **Streptococcal epizootic in guinea pigs.**—*Mem. Inst. Osw. Cruz.* **47,** 701-706. [In English. Abst. from authors' summary.] **2700**

In 1948 and 1949 there occurred in the Oswaldo Cruz Institute epizootics in g. pigs, at first among animals inoculated with *Leishmania "enriettii"* and then among those of American origin that had not been inoculated. The epizootic was rapidly controlled by the use of sulphanilamide, added to the feed daily in the dose of 10 g. per 3 kg. of food, given to the whole batch for 30 days.

The causal organism was identified as *Str. zooepidemicus* of Frost and Engelbrecht.

The disease was characterized by cutaneous abscesses following an acute purulent lymphadenitis and polyarthritis. The considerable proliferation of fibrocytes seen in the regions near the acute inflammatory process was marked as compared with that seen in man and other animals.

OKLJEŠA, B., MILUNOVIĆ, M. & PELICARIĆ, J. (1951). Streptococcus agalactiae kod kose. [*Streptococcus agalactiae* **mastitis in a goat.**] —*Vet. Arhiv.* **21,** 389-398. [Abst. from English summary.] **2701**

An account of an isolated case of mastitis in a goat. The causative organism was found to belong to an atypical strain of *Str. agalactiae*. —G. P. MARSHALL.

DALLING, T. (1951). **Diseases of animals. Bovine mastitis.**—*J.R. agric. Soc.* **112,** 148-149. **2702**

A discussion of recent advances in the control and treatment of mastitis. Summer mastitis has been shown to be a mixed infection and intramammary penicillin infusions are of value in its prevention.—E. J. H. FORD.

NOTE.—*The* V.B. *references given in square brackets now refer to abstract numbers and not to page numbers.*

PRIER, J. E. (1952). **Vibrionic abortion.**—*Vet. Med.* **47**, 85-88 & 111. **2703**

A brief discussion based on the literature. —C. C. BANNATYNE.

SJOLLEMA, P., STEGENGA, T. & TERPSTRA, J. (1952). **Infectious sterility in cattle, caused by *Vibrio foetus*.**—*Rep. XIVth Internat. vet. Congr.* **3**, 123-127. [French and German summaries.] **2704**

An account of *V. fetus* infection as the cause of enzootic sterility of cattle in the Netherlands. —C. C. BANNATYNE.

EASTERBROOKS, H. L. & PLASTRIDGE, W. N. (1952). **Experimental transmission of *Vibrio fetus* in diluted semen and by contact.**—*J. Amer. vet. med. Ass.* **120**, 199-201. [Abst. from authors' summary.] **2705**

In observations on 12 heifers, six inseminated with *V. fetus*-infected diluted semen and six inseminated with normal diluted semen it was noted that the infection could be transmitted through artificial insemination and also by contact. Contact transmission may occur from vulva to vulva by animals licking one another and/or by insect vectors.

NORDBERG, B. (1951). **Studies of *Bacillus anthracis* in regard to its properties of diagnostic and pathogenetic importance.**—*Thesis, Stockholm.* pp. 116. [In English.] **2706**

An account of work to differentiate *B. anthracis*, *B. cereus* and *B. mycoides*. Encapsulation, colony type, growth in broth and haemolysing capacity could be relied upon for differentiation. Motility was a useful differential character. After incubation in horse serum, *B. anthracis* grew well and developed capsules. Capsulated anthrax bacilli were virulent for mice and rabbits *per os*. Unencapsulated bacilli were of diminished virulence. Bacteria-free filtrates from cultures of encapsulated *B. anthracis* produced oedema and local white cell infiltration resembling early abscess formation when injected intradermally into rabbits; the degree of skin reaction was proportional to the content of capsular substance of the original culture.

—CLIVE BRIGGS.

SMIRNOV, G. G. & KAMALOV, N. G. (1951). **[Transfer of *Bacillus anthracis* by ancylostomid larvae.]**—*C.R. Acad. Sci., U.R.S.S.* **76**, 759-760. [In Russian.] [Abst. in *Helminth. Abstr.* **20**, 90. (1952), copied *verbatim*.] **2707**

Four experiments were carried out with suspensions of *Bacillus anthracis* on hamsters. The suspensions were, (i) inoculated subcutaneously in saline, (ii) fed *per os*. (iii) placed on the skin, and (iv) placed on the skin with larvae of *Necator americanus*. Those animals which were inoculated subcutaneously died in 24-36 hours; those which had bacilli with larvae died in 48-96 hours; those which were fed with suspensions of bacilli and those in which bacilli were placed on the skin without larvae survived 86 days and when killed were negative for anthrax.

NOVEL, E. & REH, T. (1947). De la longévité des spores du Bacillus anthracis et de la conservation des pouvoirs pathogène et antigène. **[Viability of anthrax spores and the preservation of their pathogenic and antigenic characters.]**—*Schweiz. Z. Path. Bakt.* **10**, 180-192. [In French. English, German and Italian summaries. Abst. from English summary.] **2708**

Spores of two strains of *B. anthracis* which had been dried on filter paper in 1901 grew normally 35 and 45 years later. The spores of the latter strain formed smooth colonies. They were avirulent but still retained their full immunizing properties. The spores of the other strain were rough and of full virulence.

MITSCHERLICH, E. (1950). Ein neues Verfahren zur Herstellung einer Anthrax Sporenvaccine. **[Anthrax spore vaccine production.]**—*Z. Hyg. Infektkr.* **131**, 657-667. **2709**

The method described is based on the use of a medium which gives a maximal number of spores and the use of a preserving substance which destroys rapidly contaminants and the vegetative forms of anthrax. The medium is a meat infusion agar (0.35% agar) containing hay infusion, the depth of the medium being not greater than 0·7 cm., to allow sufficient penetration of oxygen. After one week's incubation the preserving fluid of phenol (0·5%) and glycerin (10%) is added, the strengths given being the final ones after embodiment in the medium. After a few days all contaminants are destroyed. The vaccine is left at room temperature for one week and then diluted so as to give 50 million spores per ml.

—A. MAYR-HARTING.

GOVAERTS, A. (1951). Influence du calcium sur l'atténuation du bacille du charbon par la méthode de Pasteur. **[Influence of calcium on the attenuation of *B. anthracis* by Pasteur's method.]**—*Ann. Inst. Pasteur.* **81**, 424-429. **2710**

The time taken to attenuate *Bacillus anthracis* in calcium-deficient broth is very variable; when 0·01% calcium chloride is added it

is 15 days and over 40 days when sodium oxalate is added. Thus attenuation above optimum temperature is dependent on the calcium content of the culture.—F. R. HARRIS.

SUTHERLAND, A. M. (1943). **Unsuspected tuberculosis of the endometrium.** — *J. Obstet. Gynaec.* **50,** 161-176. **2711**

Of 6,385 specimens in which the endometrium from women was examined histologically, TB. was found in 1·1%. Of the g. pigs inoculated with endometrial tissue obtained by biopsy from 16 of the patients, TB. lesions developed in those that received material from seven of the cases and cultures were obtained and typed from the lesions of g. pigs that received material from four of the patients. Bovine type tubercle bacilli were obtained from those inoculated from one of these four cases.

CLAYTON, S. G. (1952). **Pathogenesis of tuberculosis of the female genital organs.**—*Brit. J. Tuberc.* **46,** 103-108. **2712**

C. stated that the type of tubercle bacillus causing lesions in the uterus of women has not often been investigated. He referred to Sutherland (1943) [see preceding abst.] who found that one out of four cases of uterine TB. in women was caused by the bovine type of organism.

KOCH, O. & SCHÄFER, E. L. (1950). Zur Frage der Beziehungen zwischen Schilddrüsenfunktion und Tuberkulose. **[Relations between thyroid function and TB.]**—*Z. Tuberk.* **95,** 18-35. **2713**

The authors discussed the literature on the relation between thyroid function and TB. and described experiments in which preliminary methylthiouracil injections unfavourably influenced the course of experimental TB. (human type H1596) in g. pigs. [A bibliography is included.]—W. R. BETT.

V. D. OHE. (1951). Beitrag zur Technik der Gewinnung von Bronchialsekret beim Rinde zum Nachweise von Tuberkelbakterien. **[Collection of sputum of cattle for TB. diagnosis.]** —*Dtsch. Tierärztl. Wschr.* **58,** 99-102. **2714**

Three methods of bronchial lavage were described and evaluated. The third—using a pharyngeal mucus collector (Rachenschleimfangmethode)—is simple, reliable, and most practicable.—W. R. BETT.

NÈGRE, L. & BRETEY, J. (1951). Sur une infection tuberculeuse abortive déterminée chez le cobaye par l'inoculation de quelques unités de bacilles de Koch jeunes ou de certains produits pathologiques humains. **[Non-progressive TB. in g. pigs caused by inoculation with young cultures of tubercle bacilli of human origin or with certain infective tissues or body fluids.]**—*C.R. Acad. Sci., Paris.* **233,** 109-111. **2715**

This benign type of infection is not due to an ultravirus but to young forms of *M. tuberculosis*, such as are found in cultures and in certain tissues and body fluids.

—G. P. MARSHALL.

FRASCAROLI, G. (1951). Il segno di Velez nella tbc degli animali domestici. **[The Velez sign in TB. of domestic animals.]**—*Nuova Vet.* **27,** 381-383. **2716**

A note on a feature of the Arneth count of the nuclei of polynuclear leucocytes which Velez (1921) described as occurring in individuals with TB. F. found that this feature of the Arneth count was unreliable as a means of diagnosis.

—W. T. THOMPSON.

MONACI, V. (1949). Comportamento del b. tubercolare in un corso d'acqua contaminato dai liquami di fogna di un ospedale sanatoriale. **[Viability of tubercle bacilli in a canal contaminated with effluent from a TB. sanatorium.]**—*Boll. Ist. sieroter., Milano.* **28,** 295-297. [Abst. from English summary.] **2717**

Tubercle bacilli were isolated from four out of six samples of effluent from a sedimentation tank of a TB. sanatorium, from five out of 15 samples of water taken from a canal 50, 100 and 200 m. below the point of entry of the effluent and from one of two samples of mud from the canal, treated appropriately and sown on to culture media. Tubercle bacilli could not be isolated from canal water taken 250 m. below the point of entry of the effluent.

DUBOS, R. J. & MIDDLEBROOK, G. (1948). **Cytochemical reaction of virulent tubercle bacilli.** [Correspondence.] — *Amer. Rev. Tuberc.* **58,** 698-699. **2718**

Virulent strains of tubercle bacilli can be distinguished from avirulent strains by adding a small amount of neutral red to a suspension of the washed bacterial cells in an aqueous solution of 5% sodium chloride and 1% sodium barbiturate. Virulent strains bind the dye and become bright red, the medium remaining yellow. In the case of avirulent strains, no significant fixation of the dye occurs.—C.M.S.

HAUDUROY, P. & POSTENAK, Y. (1949). Sur une réaction permettant de distinguer les mycobactéries virulentes des mycobactéries avirulentes. **[Distinction between virulent and**

avirulent mycobacteria.]—*C.R. Acad. Sci., Paris.* 228, 781-782. 2719

Certain cytochemical properties peculiar to mycobacteria permit distinction between virulent and avirulent strains. Neutral red as described by Dubos [see preceding abst.] is used as an indicator.

The authors studied 58 human, 5 bovine, 4 avian and 67 saprophytic strains of mycobacteria. All the human and bovine strains gave a red reaction which did not fade in 24 hours. The avian strains gave a red reaction which faded to yellow in 24 hours, whilst all the saprophytic strains gave yellow reactions. The reaction did not depend on the culture medium. Streptomycin sensitive and resistant strains were studied with the same result. Thus within the limits of the experiment the findings of Dubos were confirmed —G. V. LAUGIER.

NÈGRE, L. (1950). De l'action combinée de l'antigène méthylique et de la streptomycine sur la tuberculose du cobaye et du lapin. **[The combined action of a methylated vaccine and of streptomycin on TB. in g. pigs and rabbits.]**—*Ann. Inst. Pasteur.* 78, 435-443. 2720

Repeated subcutaneous injections of antigen (18 ml. of a suspension containing 10 mg. per ml.) conferred resistance on g. pigs when given 10–15 days before infection with *Mycobact. tuberculosis* (0·002 mg. subcutaneously for g. pigs and 0·005 mg. intravenously for rabbits). This resistance was increased if streptomycin (2 mg. per day for g. pigs or 10 mg. for rabbits) was given subcutaneously over a 49-day period one month after infection.

—MALCOLM WOODBINE.

BOULANGER, P. & KONST, H. (1952). **An evaluation of the haemagglutination test of Middlebrook and Dubos for the standardization of bovine tuberculin.**—*Canad. J. comp. Med.* 16, 66-73. [Authors' summary copied *verbatim.*] 2721

A limited investigation was instituted to determine whether the haemagglutination test would be useful as a supplementary method for the testing and standardization of bovine tuberculins. That the test might have some usefulness in the preliminary evaluation of the potency of different lots was suggested, the titres showing a general relationship to those determined by intracutaneous tests in guinea pigs sensitized with bovine tubercle bacilli. No evaluation of their relative specificity could however be made by this method.

ROSENTHAL, S. R. (1952). **The preservation of B.C.G. by freeze-drying.** — *Acta tuberc. scand.* 26, 106-119. [In English.] [Author's summary slightly modified.] 2722

B.C.G. vaccine was preserved by freeze-drying using as adjuvant a combination of 15% lactose, asparagine, buffered salts and glycerin. The product is chalky white, powdery, contains 0·5% moisture or less and is readily resuspendable. Stored at refrigerator temperature at 4° to 6°C. it retains its viability to a high degree for periods of 12 to 20 months. At room temperature it retains its viability to a high degree for 2 to 3 months and at incubator temperatures for 1 to 2 months. Conversion of the tuberculin reaction in animal and man compares favourably with the fresh liquid vaccine except for a delay. In newborn, universal conversion occurs at 28 days for the fresh, as compared to 58 days for the freeze-dried vaccine. Preliminary studies in g. pigs indicate that the degree of immunity produced by the preserved vaccine, equals or is better than that produced by the fresh. Virulence, pathologic and morphologic studies indicate that the freeze-dried vaccine is in all respects similar to the freshly prepared one.

BIRKHAUG, K. & DARRICARRERE, R. (1952). **Comparative antigenic potency of killed irradiated tubercle bacilli and living BCG vaccine.**—*Proc. Soc. exp. Biol., N.Y.* 79, 387-390. [Authors' summary copied *verbatim.*] 2723

Living BCG vaccine has shown superior antigenic potency to killed irradiated tuberculosis vaccines by producing significantly greater tuberculin hypersensitiveness and specific resistance against a challenge virulent inoculation in guinea pigs.

CONNELL, R., MOYNIHAN, I. W. & FRANK, J. F. (1952). **Studies of swine erysipelas. I. Literature review and survey of *Erysipelothrix rhusiopathiae* infection in Canada.**—*Canad. J. comp. Med.* 16, 104-128. [Authors' summary copied *verbatim.*] 2724

BYRNE, J. L., CONNELL, R., FRANK, J. F. & MOYNIHAN, I. W. (1952). **Studies of swine erysipelas. II. Cultural characteristics and virulence of strains of *Erysipelothrix rhusiopathiae* isolated in different regions in Canada.** —*Ibid.* 129-148. [Authors' summary copied *verbatim.*] 2725

I. The literature on *E. rhusiopathiae* has been reviewed, particularly in regard to bacteriology and infections of swine.

Data are presented on a survey across Canada. Specimens from a total of 497 pigs

that had been affected with conditions suggestive of *E. rhusiopathiae* infection were examined. The organism was isolated from 200. Four hundred and fifty-eight were affected with arthritis and from these 167 isolations were made. Five pigs had arthritis and diamond skin disease; the organism was recovered from 3. Twenty-three animals affected with diamond skin disease yielded 19 isolations. Two sows with parturient paresis, 2 pigs with endocarditis, 2 piglets with omphalitis and 4 pigs with septicemia all yielded *E. rhusiopathiae*.

Because arthritis comprised the major condition encountered a description of the gross pathology is given. Data are presented which tend to indicate the incidence of *E. rhusiopathiae* infection in Canada.

II. The morphological, cultural and biochemical characteristics of one hundred and forty-one strains of *Erysipelothrix rhusiopathiae* isolated from turkeys and from different types of lesions in hogs have been determined. The degree of pathogenicity for mice of these strains was also noted.

Definitely Gram-negative forms of the microorganisms were observed.

Lactose, glucose, galactose and fructose peptone water "sugars" were quite regularly attacked. Mannose and maltose were inconsistent in their reaction. Maintenance of strains by regular subculture on beef-infusion broth containing 2% horse or pig serum for a period of one year very often resulted in a diminution of a strain's saccharolytic powers. There was no relationship between a strain's biochemical reactions and its mouse pathogenicity or cultural characteristics.

Strains isolated from fowl, acute hog infections, lesions of diamond skin disease and the majority of arthritic lesions were strongly pathogenic for mice under the method of testing used. Virulence was well maintained by cultures kept on pig or horse serum infusion broth. Those strains that lost virulence like those that were avirulent in their initial tests came from arthritic lesions.

HARBOUR, H. E., WHITTEN, L. K. & ALLAN, W. S. (1952). **Post-dipping lameness in sheep.**—*Rep. XIVth Internat. vet. Congr.* **2,** 106-112. [French and German summaries. Authors' summary modified.] 2726

An account of lameness in sheep caused by *Erysipelothrix rhusiopathiae* following dipping in modern insecticidal dips containing no bactericidal substances, most of the work having been done in New Zealand. The disease has also appeared in Australia, Britain, Chile, Brazil and in the Argentine.

Copper sulphate added to the dipping wash to give a final concentration of 0·03% provides a cheap and effective reagent, not only for the prevention of growth of infection but also for the elimination of established infections in foul sheep dips.

WELLMANN, G. (1950). Rotlaufübertragung durch verschiedene blutsaugende Insektenarten auf Tauben. [**Infection of pigeons with *Erysipelothrix rhusiopathiae* by blood-sucking insects.**]—*Zbl. Bakt. I.* (*Orig.*) **155,** No. 2-4. 109-115. 2727

E. rhusiopathiae from infected mice or pigeons was transmitted to healthy pigeons by the bite of insects. The mouse is more reliable as a donor of the infection than the pigeon. An insect carrying the organisms can by itself infect two healthy animals. The insects used in successful experiments were *Stomoxys* and various tabanids. Experiments with mites were unsuccessful although the organisms could be cultured from mites fed on a sick mouse.

—A. MAYR-HARTING.

COOK, R. (1952). **A method of demonstrating *Pasteurella pseudotuberculosis* in smears from animal lesions.**—*J. Path. Bact.* **64,** 228-229. [Author's summary copied *verbatim*.] 2728

A modified Ziehl-Neelsen method is described for the demonstration of *Past. pseudotuberculosis* in smears. The possibility that other conditions may be wrongly ascribed to infection with this organism is discussed.

VALLÉE, A. (1950). Action de la streptomycine dans la pseudo-tuberculose expérimentale du cobaye. [**Action of streptomycin on *Pasteurella pseudotuberculosis* infection in g. pigs.**]—*Ann. Inst. Pasteur.* **78,** 555-557. 2729

At a concentration of 100 μg. per ml., streptomycin was bactericidal for a strain of *Past. pseudotuberculosis*, and in a total dosage of 300 mg. (25 mg. twice daily) it cured g. pigs of an infection with this organism which killed the controls in five days.—G. P. MARSHALL.

BRUNER, D. W. & PECKHAM, M. C. (1952). **An outbreak of paracolon infection in turkey poults.**—*Cornell Vet.* **42,** 22-24. 2730

The outbreak involved the death of over 100 poults out of a flock of 2,500. P.M. findings included peritonitis and necrosis of areas of the liver. Cultures from most of the organs yielded pure paracolon strains of the Arizona sub-group. Serological examination showed the organism to be of the type Ar. 7:1, 7, 8.

—E. J. H. FORD.

CARTER, H. S. & WEIR, I. B. L. (1952). **A dog as a probable source of human infection with** *Salmonella paratyphi-B.*—*J. Path. Bact.* **64,** 230-232. [Authors' summary modified.] **2731**

S. paratyphi-B was isolated from a dog—for the first time in Great Britain, as far as could be ascertained. The dog probably infected its owners, a family of four, from whom also the organism was isolated.

LILLEENGEN, K. (1952). **Typing of** *Salmonella gallinarum* **and** *Salmonella pullorum* **by means of bacteriophage.** — *Acta path. microbiol. scand.* **30,** 194-202. [In English. Author's summary modified.] **2732**

In the experiment described 180 strains of *S. gallinarum* and *S. pullorum* were divided into six types by means of six selected phages (two *gallinarum* and four *pullorum* phages). Accurate typing could be done by using only four of these phages. By means of six selected *dublin* and *enteritidis* phages the same strains could be divided into seven types.

With the suggested phage-typing method it is possible to differentiate the *duisburg* variant of *S. gallinarum* from *S. gallinarum* as accurately as by the biochemical method. *S. pullorum* cannot always be differentiated from *S. gallinarum* by means of the six tested *gallinarum* and *pullorum* phages. Seventeen of the total number of 149 examined *pullorum* strains were found to belong to the same phage type (type 2) as the examined *gallinarum* strains. These 17 *pullorum* strains will probably be recognized as an independent type as soon as a suitable phage has been isolated. The fact that in the typing experiments with the *dublin* and *enteritidis* phages the *pullorum* strains in question could be referred to a special type (type 3) points to this possibility. Only two types of *S. gallinarum* were identified whereas *S. pullorum* was divided into four types by means of the tested *gallinarum* and *pullorum* phages, and into five types by means of the tested *dublin* and *enteritidis* phages.

Strains isolated from cases of the same outbreak of infection or from animals of the same stock were found to belong to the same phage type.

SCHAETZ, F. & BUSS, W. (1951). Ist eine Übertragung der Brucellose (Abortus Bang) auf Rinder durch Ratten möglich? **[Rats as possible carriers of bovine brucellosis.]**—*Mh. prakt. Tierheilk.* **3,** 136-141. **2733**

The authors found that rats may excrete *Br. abortus* in the urine for up to 24 hours after ingestion of infected material.

—G. P. MARSHALL.

FUST, B., LÖFFLER, H., MOSIMANN, W. & SCHOCH, M. A. (1949). Kutanreaktionen mit einem Polysaccharid-Allergen aus Brucella abortus Bang. **[Skin reaction with a** *Brucella abortus* **polysaccharide allergen.]**—*Schweiz. Z. Path. Bakt.* **12,** 484-488. **2734**

The authors isolated from cultures of *Br. abortus* a nucleo-protein, a glyco-lipoid amino-acid complex (endotoxin) and a polysaccharide. The latter was used in allergic tests on laboratory animals and human subjects in order to test its value as a diagnostic agent. Results were encouraging.—J. EDWARDS.

CAMERON, H. S. & MEYER, M. E. (1952). **An attempt to alter the characteristics of** *Brucella abortus* **by serial passage through swine.** —*Cornell Vet.* **42,** 42-45. [Abst. from authors' summary.] **2735**

On the data presented it was concluded that under the conditions of the experiment Strain 19 was not changed by serial passage through 26 swine.

BAY, W. W., WASHKO, F. V., BUNNELL, D. E. & HUTCHINGS, L. M. (1951). **Studies on the pathogenicity of Brucella abortus for swine. II.**—*Proc. 88th Ann. Meet. Amer. vet. med. Ass.* Milwaukee. Aug. 20-23, 1951. pp. 142-148. [Authors' summary slightly modified. For Part I, see *V.B.* **22,** 945.] **2736**

Of 38 swine exposed to *Brucella abortus*, 26 did not become infected, *Br. abortus* was isolated from 7, and *Brucella suis* was isolated from 5. The authors discussed the reasons for the presence of *Br. suis*.

One culture of *Br. abortus* and two of *Br. suis* were recovered from the blood of the living swine in this study.

Twenty-eight of 38 swine studied never developed a complete blood serum-agglutination titer of 1:25 or higher, even though *Brucella* was isolated from 10 of these swine. Eight of the 38 swine studied developed blood serum-agglutination titers of 1:100 or higher.

WASHKO, F. V. & HUTCHINGS, L. M. (1952). **Susceptibility of cattle to** *Brucella suis* **following vaccination with** *Brucella abortus* **strain 19.**—*Amer. J. vet. Res.* **13,** 24-25. [Authors' summary modified.] **2737**

Two heifers vaccinated with *Br. abortus* Strain 19 at six months of age were exposed, following calving, by injection of a suspension of *Br. suis* into the teat canal. Both became infected, as measured by blood serum-agglutination response and recovery of *Br. suis* from the milk during life and from the tissues at autopsy.

KRISTENSEN, M. (1952). **Human brucellosis in Denmark, 1927-51.**—*Acta path. microbiol. scand.* **30,** 125-148. [In English. Author's summary slightly modified.] **2738**

The annual number of diagnosed cases of febrile brucellosis among the population of Denmark since 1938 has fallen from about 600 to less than 200. This fall cannot be attributed to any permanent decrease in the sensitivity of the serological diagnosis employed. As an antigen for the serological diagnosis by agglutination, various strains of *Br. abortus* behaved in a practically uniform manner.

The seasonal curve for the frequency of the brucellosis cases seems to present a real maximum in June (reckoning according to the date when the diagnosis was made). This conforms with a somewhat earlier frequency maximum for cases of bovine abortion. In relation to the population within each sex and age group there is a frequency maximum at the age of 25-29 among the males, though in very recent years it is at the age of 30-34 years. Among the females there are two maxima: a lower one in the 35-39 age group and a higher one at the age of 50-54. These three maxima are more pronounced among the rural population, but are also observable in the urban population.

In Greater Copenhagen the number of brucellosis cases has decreased considerably since 1942, in close relation to a more systematic use of milk pasteurization. Among the few cases in 1944-50 approximately equal numbers can be ascribed to children's milk (that is always sold unpasteurized) and ordinary whole milk that has in different ways evaded pasteurization.

There was found a pronounced correlation between the frequencies of brucellosis in cattle and in man in different periods and in different regions of the country.

MCCULLOUGH, N. B. & BEAL, G. A. (1952). **Antimetabolic action of sulfadiazine and certain antibiotics for brucella.**—*J. infect. Dis.* **90,** 196-204. [Authors' summary copied *verbatim*.] **2739**

The effect of sulfadiazine and certain antibiotics on respiration of brucella was studied in the Warburg apparatus. Sulfadiazine did not inhibit respiration with a glucose substrate; streptomycin and dihydrostreptomycin exhibited an early stimulatory effect followed by inhibition. Aureomycin, chloromycetin, and terramycin all produced inhibition, that with aureomycin being most marked. Certain combinations of aureomycin and dihydrostreptomycin (or streptomycin) showed a synergistic inhibitory effect. Aureomycin was also shown to inhibit respiration with trehalose, xylose, fructose, and pyruvate substrates. No difference was noted in the action of aureomycin on an aerobic and a carbon-dioxide-sensitive strain of *Brucella abortus*. Cells treated with aureomycin and streptomycin showed continued action of the drugs after washing; those treated with sulfadiazine did not.

MANTHEI, C. A., MINGLE, C. K. & CARTER, R. W. (1951). **Duration of immunity to brucellosis induced in cattle with Strain 19 vaccine.**—*Proc. 88th Ann. Meet. Amer. vet. med. Ass.* Milwaukee. Aug. 20-23, 1951. pp. 128-141. Discussion: pp. 141-142. [Abst. from authors' summary.] **2740**

Under the conditions of this experiment, the results indicate that resistance induced in cattle with Strain 19 did not decrease with time. Of the vaccinated animals which received artificial exposure, the resistance was greatest in the older animals and least in the younger ones. No difference could be shown in the degree of resistance between animals vaccinated as calves and 2-year-olds when challenged to brucellosis in the third gestation. All the unvaccinated control cattle, except 2, that received artificial exposure became infected. A serviceable resistance to brucellosis was demonstrated in calf-vaccinated heifers during the first gestation when exposed by contact with infected cattle.

VERWEY, W. F. & MATT, C. (1952). **Viability of restored desiccated *Brucella abortus* vaccine.**—*J. Amer. vet. med. Ass.* **116,** 296-297. [Authors' summary and conclusions slightly modified.] **2741**

Br. abortus vaccine desiccated by lyophilization was restored to its fluid state and its viability was determined over a period of 90 days storage at 2° to 5° C. No evidence of significant decreases in viability were observed over a 36-day period of storage and, even after 90 days, 68 and 75% of the initial restored viable count were found. These results indicate that lyophilization had not caused significant physiological damage to the viable organisms in the vaccine. Restoration of lyophilized *Br. abortus* vaccine in the veterinarian's office prior to a trip to the field, therefore, would appear to be a safe and practicable procedure, provided that the usual precautions for refrigeration are observed.

PICKET, M. J. & NELSON, E. L. (1951). **Observations on the problem of brucella blood cultures.**—*J. Bact.* **61,** 229-237. [Authors' summary modified.] **2742**

Citrated human blood specimens were

washed with distilled water prior to culturing for brucella. From such specimens micro-organisms were routinely recovered, and these were identified, on the basis of their microscopic, antigenic, and pathogenic characteristics, as *Brucella*. With but few exceptions, however, all were non-smooth variants. This procedure for handling *Brucella* blood cultures was discussed in respect to the results presented and to the presence of concomitant *Brucella* antibody and *Brucella* phage in blood specimens.

HUDDLESON, I. F. (1950). **Further obserations on the immunizing value of Brucella M vaccine against brucellosis.**—*J. Amer. vet. med. Ass.* **116,** 50-51. **2743**

Immunization of adult cattle with brucella M vaccine in four small controlled experiments indicated that vaccinated animals remained negative reactors in the presence of infected animals.—L. M. JONES.

BEALL, F. A., LERNER, E. M. & VICTOR, J. (1952). **Respiration associated with phagocytosis of brucella.**—*Amer. J. Physiol.* **168,** 680-685. [Authors' summary copied *verbatim*.] **2744**

Mixing dog or human blood with live *Br. abortus* 19, or dog blood with formalin-killed *Br. abortus* 19 or *Br. suis* PSIII increased O_2 consumption. The increase was greater and longer with live than with dead organisms although phagocytosis was the same. It was concluded that the increased O_2 consumption associated with mixing dead organisms and blood was due to phagocytosis. Plasma was not essential for this effect. The process of opsonization itself, either by whole blood or plasma, had no respiratory effect. Phagocytosis and its associated O_2 uptake were greater with opsonized than with unopsonized bacteria. In general, a greater oxygen uptake was observed where greater phagocytosis occurred, although the correlation was not uniform. The respiratory effects associated with phagocytosis were greater in dog than in human blood.

HOERLEIN, A. B. (1952). **Studies in swine brucellosis. I. The pathogenesis of artificial *Brucella melitensis* infection.**—*Amer. J. vet. Res.* **13,** 67-73. [Author's summary modified.] **2745**

Thirty-one gilts were divided into three groups and exposed artificially to a field strain of *Brucella melitensis* by three different routes: intravenous, conjunctival sac, and intravaginal. Infection was accomplished by all three routes of exposure. Spread by natural means to uninoculated controls was accomplished in two of the groups.

H. concluded that the pathogenesis of infection of swine with *Br. melitensis* is similar to that with *Brucella suis*. The strain used in these studies seemed moderate in virulence as compared to some strains of *Br. suis*.

MANNINGER, R. (1951). La tularémie. **[Tularaemia.]**—*Bull. Off. internat. Epiz.* **36,** 168-175. [English summary.] **2746**

Epizootics in hares and rabbits usually follow those in small rodents. The spread of the disease is probably due to migrations of small rodents. As it is impossible to control these migrations, prophylaxis is difficult.

—A. MAYR-HARTING.

PARKER, R. R., STEINHAUS, E. A., KOHLS, G. M. & JELLISON, W. L. (1951). **Contamination of natural waters and mud with *Pasteurella tularensis* and tularemia in beavers and muskrats in the Northwestern United States.**—*Nat. Inst. Hlth Bull.* No. 193. pp. 61. [Abst. from authors' summary.] **2747**

In general, the results and data gained from the field observations and laboratory experiments indicate that water and mud contamination, and the occurrence of tularaemia in muskrats and beavers are widespread phenomena in the Northwestern States. Water and mud contamination may be present at any season of the year and may persist for at least 16 months. It is improbable that persistence of contamination can be attributed to factors resident in land-frequenting animals. Present information suggests that the factors governing persistence are resident in the water or mud or both, and suggests the hypothesis that the organism multiplies in the water-mud medium.

RAO, K. N. A. & KALRA, S. L. (1949). **Tick borne relapsing fever in Kashmir.**—*Indian J. med. Res.* **37,** 385-400. **2748**

In this account of tick-borne relapsing fever of human beings in Kashmir the authors discussed the habits of *Ornithodoros crossi*, *O. lahorensis* and *Argas persicus*, all of which occur in Kashmir; the former transmits the disease. They found some evidence that rats may serve as reservoirs of infection. They discussed reactions of various laboratory and domestic animals to infection with the spirochaete concerned.

—G. A. SHIVNANI.

WIKERHAUSER. T. (1951). Contribution à l'étude des leptospiroses bovines en Suisse. (Recherches sérologiques.) **[Bovine leptospirosis in Switzerland. Serological studies.]**

—*Schweiz. Z. Path. Bakt.* **14,** 93-115. [In French. English, German and Italian summaries.] **2749**

The agglutination-lysis test was applied to bovine sera, titres of 1 : 400 and over being considered positive.

Of 300 sera from apparently healthy cattle from different parts of Switzerland 50 contained antibodies against *L. sejröe,* eight against *L. icterohaemorrhagiae,* three against *L. mitis,* two against *L pomona,* and one each against, *L. australis* and *L. grippo-typhosa.*—W. Steck.

Lukeš, J. & Čech, K. (1950). Die hypertrophische Leberzirrhose und ihre Beziehungen zu den Leptospirosen. **[Hypertrophic cirrhosis of the liver and its relationship to leptospiral infection.]**—*Schweiz. Z. Path. Bakt.* **13,** 175-199. [English, French and Italian summaries. Abst. from English summary.] **2750**

The authors presented a study of hypertrophic cirrhosis of the liver in horses observed in Germany and Czechoslovakia. They described the sequence of the changes of the liver from the initial serous infiltration to the final chronic cirrhotic state. There were neither degenerative changes of the liver parenchyma nor enlargement of the spleen. They incriminated a leptospira as the causative agent. They suggested that staggering, which is observed in the terminal stages of the disease is caused, not by encephalitis, but by deranged sugar metabolism which leads to "purpura" of the brain. The disease is not due to intoxication, nor is it related to equine infectious anaemia or to a virus encephalitis.

Rausch, L. (1948). Über die therapeutische Verwendung von "Schafsläusen" bei Ikterus. **[Therapeutic use of *Melophagus ovinus* in human jaundice.]**—*Klin. Wschr.* **26,** 475-476. [Abst. from abst. in *Zbl. Bakt. I.* (*Ref.*) **147,** 269. (1949).] **2751**

Basing his treatment on a domestic remedy for jaundice in human beings used in Münster —30 to 40 sheep keds given *per os*—R. found that an alcoholic extract of *M. ovinus* given *per os* gave good results in many cases during an epidemic, but it was ineffective in two cases of Weil's disease.—M. L. Clarke.

McIntyre, W. I. M. & Montgomery, G. L. (1952). **Renal lesions in *Leptospira canicola* infection in dogs.**—*J. Path. Bact.* **64,** 145-160 [Authors' summary copied *verbatim.*] **2752**

The renal lesion of *L. canicola* infection in dogs is interstitial nephritis manifested in the acute stage of intense cellular infiltration of the kidneys which is followed by scarring and fibrosis. In the most severe cases the cellular infiltration is localized predominantly to the cortico-medullary region and the possibility is discussed that this distribution of the exudate is attributable to the renal vascular shunt. Such a localization naturally affects the distribution of the scar tissue and governs the pattern of the renal fibrosis. It has been possible to trace the evolution of the disease from the acute to the chronic stage in 6 dogs and from that and other evidence to conclude that in young dogs a period of about two years is probably required for the development of granular contracted kidneys from this cause.

Bullen, J. J. (1952). **Enterotoxaemia of sheep: *Clostridium welchii* type D in the alimentary tract of normal animals.**—*J. Path. Bact.* **64,** 201-206. [Author's summary copied *verbatim.*] **2753**

Of 100 normal sheep examined at a Cambridge slaughter house, 46 harboured *Cl. welchii* type D in some part of the alimentary tract. Of the 588 mixed cultures from different levels of the gut of the 100 animals, 117 contained epsilon toxin. Pure cultures of *Cl. welchii* type D were readily isolated from 12 of these mixed cultures selected at random. These results are consistent with the hypothesis that the infection arises from organisms already present in the alimentary tract of the sheep.

Zeissler, J. & Rassfeld-Sternberg, L. (1949). **Enteritis necroticans due to *Clostridium welchii*.** — *Brit. med. J.* Feb. 12th, 267-269. **2754**

The authors described severe acute intestinal infections in human beings caused by *Cl. welchii.*

Oakley, C. L. (1949). **The toxins of *Cl. welchii* type F.**—*Brit. med. J.* Feb. 12th, 269-270. **2755**

A report of the examination of eight cultures of a type of *Cl. welchii* isolated from the cases of enteritis necroticans in human beings described by Zeissler & Rassfeld-Sternberg [see preceding abst.]. By the classical method of Wilsdon this organism would be diagnosed as type C; its failure however, to produce *k* or δ toxins or much α toxin, or to ferment glycerol is against this view. Though it resembles strains of Type B which have lost their power to produce ε- toxin, its culture spores are far more resistant to heat than are those of type B, so that it is regarded as a new type—*Cl. welchii* type F.—W. R. Bett.

DIECKMANN, C. (1949). **Recovery of *Cl. welchii* type F from preserved cultures.**—*Brit. med. J.* Feb. 12th, 270-271. **2756**

D. isolated type F *Cl. welchii* from strains of *Cl. welchii* from Zeissler's collection [See abst. 2754.]

I. HAIN, E. (1949). **On the occurrence of *Cl. welchii* type F in normal stools.**—*Brit. med. J.* Feb. 12th, 271. **2757**

II. HAIN, E. (1949). **Origin of *Cl. welchii* type F infection.**—*Ibid.* 271. **2758**

III. ANON. (1949). **Enteritis necroticans.**—*Ibid.* 276-277. **2759**

I. From an investigation of 108 stools derived from persons not suffering from enteritis necroticans it was concluded that about one-sixth of the normal population of Hamburg carried *Cl. welchii,* type F, in their stools during the winter of 1947-48. The strains isolated were much less pathogenic for animals than strains recovered from cases of enteritis necroticans.

II. The case is reported of a man who developed abdominal pain and copious diarrhoea after eating tinned rabbit, and died 50 hours after the onset of symptoms. Autopsy confirmed the clinical diagnosis of enteritis necroticans. Two persons who had shared the meal were only slightly ill. *Cl. welchii* type F was isolated from the remnants of food and from the stools of the three patients. The meat used had been tinned immediately after killing the rabbits. The tins had been closed and boiled for two hours in a water bath.

III. Comments are made on the preceding five papers published in the same issue of *Brit. med. J.* [see preceding absts. 2754-2758]. Enteritis necroticans is an acute and often fatal intestinal infection in man, caused by *Clostridium welchii* and having close affinities with certain animal diseases (lamb dysentery, struck, etc.). The essential lesion is an extensive necrosis of the mucosa of the small intestine, with Gram-positive bacilli present. It is possible that the lesion does occur outside Germany and has been previously unrecognised since only by refined methods is the organism distinguishable from a normal inhabitant of the intestine.

—W. R. BETT.

DIAZ-RIVERA, R. S., RAMIREZ, E., PONS, E. R., JR. & TORREGROSA, M. V. (1952). **Management of tetanus. Effect of penicillin on *Clostridium tetani in vivo*.**—*J. Amer. med. Ass.* **147,** 1635-1641. [Authors' summary slightly modified.] **2760**

Repeated anaerobic cultures for *Clostridium tetani,* taken from suspected portals of entry in 17 cases of tetanus, before and after administration of penicillin, yielded the following results: (1) eight positive and nine negative cultures prior to onset of treatment; (2) complete disappearance of *Cl. tetani* in five within 24 hours, in six within 48 hours, and in seven within 72 hours; (3) persistently positive cultures for 29 days in one instance, complete sterilization being achieved only after local administration of penicillin; (4) one instance in which a culture that was positive 48 hours after initiation of penicillin therapy became negative in 72 hours.

Recent well-localized, small, shallow, suppurating lesions appear to be the better sources of *Cl. tetani* than extensive, chronic, or deep lesions.

Penicillin seems to be a useful adjuvant in the management of tetanus. The beneficial effects can be attributed to its antibiotic property against *Cl. tetani* causing its eradication from the portal of entry within one to four days after initiation of parenteral administration. The elimination of growth and multiplication of *Cl. tetani* prevents the production, diffusion, and fixation of tetanus toxin, and indirectly may help in preventing the progress of symptoms.

The bacteriostatic properties of penicillin justify its use in every case of tetanus, both parenterally and locally, where the portal is accessible. Its use may obviate débridement, especially in cases with suppuration or extensive lesions.

Administration of repeated doses of antitoxin after the disappearance of *Cl. tetani* from the portal of entry is probably a waste of time.

Neutralization of free toxin with tetanus antitoxin, administration of penicillin, even without proper débridement of the portals of entry; proper sedation; efficient hydration and electrolyte balance; proper nutrition, and maintenance of unobstructed air passages by mechanical means, including suction, tracheotomy, and use of a respirator—all these are considered to be life saving measures in the management of tetanus in human beings.

ROBINSON, T. J., JASPER, D. E. & GUILBERT, H. R. (1951). **The isolation of *Spherophorus necrophorus* from the rumen together with some feed lot data on abscess and telangiectasis.**—*J. Anim. Sci.* **10,** 733-741. [Authors' summary slightly modified.] **2761**

Experiments and observations made on the problems of liver abscess and telangiectasis in cattle during 1950 are presented. No apparent relation exists between time in the fattening

pen and the incidence of liver abscesses. There appears to be an increase in telangiectasis shortly after cattle are placed on full feed in the fattening pens. The incidence then appears to decrease after 50 days. Telangiectasis is capable of healing without fibrosis. The incidence of telangiectasis in California is very much higher than is indicated by condemnation records. "Sawdust" type lesion is extremely rare in California. The upper parietal region of the liver, in the area of attachment to the diaphragm, appears most susceptible to telangiectasis. There is no demonstrable relationship between telangiectatis, abscess, and fluke, nor is there any evidence that abscesses are more likely to develop in areas of telangiectasis than in other areas of the liver. The isolation of *Fusiformis necrophorus* from the bovine rumen is described. It is capable of surviving extremes of rumen environment. This study includes also description of unsuccessful attempts to induce liver damage and *F. necrophorus* infection experimentally by drastic feed changes and injection of the organism by stomach tube and intravenously.

Bessey, E. A. (1950). **Morphology and taxonomy of fungi.**—pp. xiii+791. Philadelphia & Toronto: The Blakiston Co. London: Constable & Co. Ltd. 50s. 2762

In this comprehensive volume the author has provided students of mycology with the basis for a sound grounding in the morphology and taxonomy of the fungi. He has competently described the diagnostic characteristics of all the recognised orders of the fungi; and has provided keys to assist in their identification. He has noted those orders which contain important fungal parasites of plants and animals. Not the least valuable chapter is the final one: "A guide to the literature for the identification of the fungi". The diagrams are liberally distributed and are generally of a high standard and enhance the value of the book.

—M. J. Lethbridge.

Sánchez Botija, R. (1951). Contribución al conocimiento de las micosis gástricas. **[Mycotic infection of the abomasum in an ox.]**—*An. Fac. Vet., Madrid.* **3,** 341-350. [English, French and German summaries. Abst. from summaries.] 2763

The author described ulceration of the abomasum in an ox caused by a fungus of the *Mucor* class. He described the microscopic characters of the lesion.

Rolle, M., Ilukewitsch, A. & Mundt, W. (1951). Über den Erreger des ansteckenden Schnupfens der Hühner (Coryza infectiosa gallinarum). **[The causative agent of infectious coryza in fowls (Coryza infectiosa gallinarum).]**—*Berl. Münch. tierärztl. Wschr.* No. 1. pp. 14-16. 2764

The authors claimed that the cause of the chronic form of infectious coryza in fowls is a *Penicillium*. Fowls could be infected with pure cultures of this organism. Suphonamides were recommended for treatment.

—A. Mayr-Harting.

Weiner, M. A. (1950). **Simple efficient method of examining skin scrapings for fungi.**—*Arch. Derm. Syph., Chicago.* **62,** 709-711. [Abst. in *Rev. med. vet. Mycol.* **1,** 464. (1951), copied *verbatim.*] 2765

A simple modification of the usual method of examining skin scrapings for the presence of fungi is described. It involves merely the substitution of a Dappen medicament glass (a heavy, usually ten-sided cup with a biconcave internal structure) for a glass slide to catch scrapings from the lesions. The concentration of scrapings per microscopic field can be easily controlled by varying the amount of potassium hydroxide added to the dish.

Grayston, J. T., Loosli, C. G. & Alexander, E. R. (1951). **The isolation of *Histoplasma capsulatum* from soil in an unused silo.**—*Science.* **114,** 323-325. 2766

After the isolation of *H. capsulatum* from sputum and bone marrow of three farm workers suffering from histoplasmosis, soil from a disused silo which they had been cleaning out was examined. Of a total of 106 soil samples from the silo, 26 yielded cultures.

—F. R. Harris.

Giblett, E. R. & Henry, B. S. (1950). **Physiological studies on the genus Microsporum.**—*J. invest. Derm.* **14,** 377-386. [Abst. in *Rev. med. vet. Mycol.* **1,** 468. (1951), copied *verbatim.*] 2767

In these studies at the University of Washington School of Medicine, Seattle, six strains of *Microsporum canis,* seven of *M. audouini,* and six of *M. gypseum* on Sabouraud's dextrose agar developed at a pH range of 4 to 10, with an optimum at 7; no growth was made at 3. The optimum temperature for all three species was from 25° to 30° C. At 38° the growth of *M. canis* was retarded and that of the other two species virtually suppressed; no development occurred at 40°. The carbon, nitrogen, amino acid, oxygen, and carbon dioxide requirements of the species are discussed in detail.

STRITZLER, C., FISHMAN, I. M. & LAURENS, S. (1950) **Treatment of superficial fungous infections with a new antifungal agent.**—*Trans. N.Y. Acad. Sci.* Ser. II. **13**, 31-37. **2768**

Asterol dihydrochloride (2-dimethyl-amino-6-(β-diethyl-amino-ethoxy)-benzothiazole dihydrochloride) is an effective topical remedy for tinea capitis caused by *Microsporon audouini* or *M. lanosum*.—W. R. BETT.

JANKE, D. (1951). Experimentelle Untersuchungen über Haftfähigkeit des Mikrosporon audouini im menschlichen Haar. [**Experimental studies on the tenacity of *Microsporum audouini* in human hair.**]—*Hautarzt., Berl.* **2**, 69-71. [Abst. in *Rev. med. vet. Mycol.* **1**, 468. (1951), copied *verbatim*.] **2769**

In laboratory experiments in which human hairs from 1- to 10-year-old-children and 30- to 60-year-old adults, soaked in a medium of dextrose 0·25, peptone 2·5, and human serum 250, were inoculated with *Microsporum audouini*, penetration was uniformly effected in 6 to 14 days in the former group (except in red or red-blonde hair) but not in the latter. However, when inoculation was preceded by 15 minutes' immersion of the adult hairs in a solution of absolute alcohol and double normal sulphuric acid or 50% sulphuric acid in equal parts to dissolve the hair and sheath cuticles, the presence of the fungus could be demonstrated after 8 to 12 days.

BURNS, R. H. G. & SIMMONS, G. C. (1952). **A case of actinomycotic infection in a horse.**—*Aust. vet. J.* **28**, 34-35. **2770**

An actinomycete thought to be allied to *Actinomyces bovis* was seen in smears and isolated culturally from a swollen and fibrosed mandibular lymph node, which had been removed surgically from a four-year-old Thoroughbred, submitted for examination because of difficult breathing. Forssell's operation for wind-sucking was carried out and the node removed at the same time. The node contained a centrally-placed encapsulated abscess about 1 in. in diameter. Pathologically the lesions did not resemble those of bovine actinomycosis or equine botryomycosis.

—B. A. FORSYTH.

PRIESTLEY, F. W. & WHITE, R. W. (1952). **A note on the isolation, from serum, of a heat stable growth factor for the contagious bovine pleuro-pneumonia organism.**—*Vet. Rec.* **64**, 259-260. [Abst. from authors' summary.] **2771**

The factor in serum necessary for the growth of the bovine contagious pleuro-pneumonia organism was shown to be heat stable and separable from the coagulable proteins.

V. D. KAAY, F. C., TEUNISSEN, G. H. B. & JANSEN, J. (1949). Een orienterend onderzoek naar het voorkomen van bacterien in het genitaal-apparaat van de steriele merrie. [**Bacteria in the genital system of sterile mares.**]—*Tijdschr. Diergeneesk.* **74**, 708-712. [English, French and German summaries.] **2772**

Using a modified catheter described by Götze (length 63 cm.) sterile mucus samples were taken from the cervical region of the vagina, from the cervix and from the uterus of 38 infertile mares. From seven, bacteria were isolated from the uterus (*Staphylococcus aureus, Bact. coli,* a *Bacillus* and a *Clostridium*. From the vagina and cervix *Bact. coli, Staph. aureus, Staph. albus,* streptococci, clostridia, aerobic spore-bearing bacilli and other bacteria were isolated.

In one third of the cases the cervix was sterile. Treatment with Lugol's iodine 1:500 had no influence on the genital flora.

—C. A. VAN DORSSEN.

KLEIN, B. I. (1951). [**Observations made with phase-contrast and electron microscopes on the process of bacteriolysis.**]—*Priroda,* **6**, pp. 47-48. [In Russian.] [Abst. in *Rev. appl. Mycol.* **31**, 55-56. (1952), copied *verbatim*.] **2773**

A brief description is given of the observations made on the process of bacteriolysis and on bacteriophage with the help of the phase-contrast microscope. Most Soviet research workers agree as to the endogenous origin of the bacteriophage and its formation from the bacterial cell itself.

See also absts. **2954-2956** (*Salmonella* organisms in meat, eggs and milk); **2985** (*Clostridium* spores); **2996** (report, Ministry of Agriculture and Fisheries); **3001** (report, Canada); **3002-3003** (reports, Newfoundland); **3004-3005** (reports, Southern Rhodesia); **3008** (report, East Africa); **3009** (report, Cyprus); **3010** (report, India); **3011** (report, Pakistan); **3012** (report, F.A.O.); **3013-3014** (reports, U.S.A.).

DISEASES CAUSED BY PROTOZOAN PARASITES

WAGNER, W.-H. (1949). Zur Vitalfärbung von Trypanosomen mit Acridinorange nach Strugger. [**Staining of trypanosomes with acridine orange.**]—*Zbl. Bakt. I.* (*Orig.*) **154**, 310-314. **2774**

Vital staining of *T. brucei* with acridine

orange produces green fluorescence of nucleus and blepharoplast, and green or red fluorescence of plasma and volutin granules.
—M. L. CLARKE.

KIRSCH, E. & WESTPHAL, A. (1951). Plasmazellen in ihrer Beziehung zu pathologischen Serumeiweissveränderungen bei experimenteller Trypanosomeninfektion. **[Relation of plasma cells to change in serum protein in experimental trypanosomiasis.]**—*Z. Tropenmed. Parasit.* **2**, 497-507. [English summary copied *verbatim.*] 2775

Based on histological and serological findings in two cases of visceral leishmaniasis the opinion is advocated that plasma cells should be considered mother cells of coarse-disperse serum proteins. In order to probe such relation experimentally, dogs and rats were infected with *Typanosoma brucei* or *Trypanosoma gambiense*. Serological changes were checked by 7 lability reactions and plasma cell content by histological examination. The supposed interrelation of plasma cells and serum lability could not be confirmed. Since either phenomenon depends on reactions of the vegetative system possibility of an indirect relation is left to dispute. In this respect, the interpretation proffered lately by Brass that proteins included in plasma cells signify a resorptive rather than secretory process deserves attention.

ZIELINSKI, A. (1952). Le problème des trypanosomiases animales dans la zone de colonisation de la "Cobelkat" au Lomami. **[Trypanosomiasis in livestock in the colonization area in the Belgian Congo.]**—*Bull. agric. Congo belge.* **43**, 135-148. [In French. Flemish summary.] 2776

Trypanosomiasis of livestock in the Lomami district is due to *T. congolense, T. vivax,* and *T. simiae,* and is transmitted by *Glossina palpalis* var. *fuscipes* and *G. fusca* var. *congolensis*. Twenty-seven *Tabanus* spp. have also been identified. Application of general principles of control appears to be efficacious.—M. L. CLARKE.

CHEN, G. & GEILING, E. M. K. (1946). **Glycolysis in *Trypanosoma equiperdum*.**—*Proc. Soc. exp. Biol., N.Y.* **63**, 486-487. 2777

Using a blood-free preparation of lysed *T. equiperdum,* the authors found that glucose was transformed into pyruvic acid by phosphorylation.—M. L. CLARKE.

CANTRELL, W. F. & MCGEACHIN, R. L. (1951). **The activity of a new pentavalent arsenical compound, α-4-arsonophenylglycylmonoglyceride, against *Trypanosoma equiperdum* in mice.**—*J. Parasit.* **37**, 569-572. [Authors' summary copied *verbatim.*] 2778

A new pentavalent arsenical, α-4-arsonophenylglycylmonoglyceride, is active against *T. equiperdum* in mice. The new compound is more active than the corresponding acid but less active than tryparsamide. Predictions, based on theoretical considerations, about the relative oil: water solubility and the trypanocidal activity of the new compound were confirmed experimentally.

CEBE, J. (1951). Chimiothérapie des trypanosomoses animales. **[Chemotherapy of trypanosomiasis in animals.]**—*Bull. Serv. Élev. Industr. anim. A.O.F.* **4**, 69-104. Discussion pp. 105-107. 2779

For prevention and cure, C. discussed arsenical, antimonial, bismuth and urea salts, diamidines, phenanthridinium and quinaldine derivatives. The dosage and method of administration of the most effective drug, are given. A very complete and detailed review.
—JAS. G. O'SULLIVAN.

PELLEGRINI, D. & BONELLI, G. (1951). Sulla terapia e sulla chemioprofilassi delle tripanosomiasi con l'antrycide. **[Treatment and prevention of trypanosomiasis with antrycide.]**—*Profilassi.* **24**, 78-85. 2780

A large-scale field trial and laboratory infection tests on cattle, camels, sheep, dogs, cats, horses and mules in Somaliland indicated that antrycide methyl sulphate has therapeutic activity against all the pathogenic trypanosomes prevalent in that country, namely *T. congolense, T. vivax, T. evansi, T. simiae* and *T. brucei,* particularly against the *T. congolense* group. Antrycide pro-salt [a mixture of the methyl-sulphate and the chloride] used as prophylactic, protected cattle against trypanosomiasis to a maximum of six months.
—K. J. SINCLAIR.

PELLEGRINI, D. & BONELLI, G. (1951). Expériences sur la thérapie et la chimiprophylaxie des trypanosomiases par l'antrycide. **[Curative and prophylactic action of antrycide.]**—*Bull, Off. internat. Epiz.* **35**, 452-471. 2781

Experience in Somaliland confirmed the effectiveness of antrycide methyl sulphate against infections of *Trypanosoma congolense, T. vivax, T. brucei, T. evansi* and *T. simiae* in cattle, camels, sheep, cats, horses and donkeys. Antrycide "pro-salt" (methylsulphate plus chloride) gave effective prophylaxis in cattle for 2–6 months.—N. DEAN.

SUTER, H. (1951). **Experiment on the use of antrycide pro-salt.**—*Bur. interafr. Tsetse Tryp.* B.P.I.T.T. No. 147/T. pp. 3. 2782

Twenty oxen were given antrycide pro-salt at a dose rate of about 5 mg. per kg., *i.e.* 2·2 g. in 20 ml. water subcutaneously, and 20 were kept as controls. The first case of trypanosomiasis in the treated animals was observed 126 days after the pro-salt (four parts methyl sulphate and three parts chloride) injection, After seven months exposure to fly, 36·8% of untreated and 15% of the treated animals had contracted trypanosomiasis. Positive cases observed after the beginning of the experiment were given a mixture containing 2 g. antrycide methyl sulphate and 2 g. chloride in 20 ml. water. No relapses occurred. Apart from trypanosomiasis, 3 cases of spirochaetosis were observed, one in the treated and two in the control animals. No fatal cases due either to trypanosomiasis or to the treatment were recorded. The duration of the protection conferred by antrycide pro-salt against *Trypanosoma congolense* and *T. vivax* infections appears to be of 3–4 months for cattle.—E.M.J.

LYSENKO, M. G. (1951). **Concerning salicylate inhibition of ablastic activity in *Trypanosoma lewisi* infection.**—*J. Parasit.* 37, 535-544. [Author's summary and conclusions copied *verbatim*.] 2783

Experiments with sodium salicylate and ablastic plasma from rats with *T. lewisi* indicated that the drug affects ablastic activity in a manner other than by combining with the antibody. No evidence was found for such a combination *in vitro* nor *in vivo*. No evidence was obtained for the separation of such a possible salicylate-ablastin complex by dialysis nor by dilution.

Total serum protein studies and electrophoretic analyses of sera of salicylate treated and untreated *T. lewisi*-infected rats showed that the levels of total protein and of the gamma-globulin fractions were higher in the untreated rats in which ablastic activity was observed. This suggested that salicylate treatment in some way prevented the formation of ablastin up to the 10th day of the infection. Indirect evidence was obtained for the presence of ablastin in the gamma-globulin fraction of rat serum.

Pantothenic acid assays on sera of salicylate treated and untreated infected rats showed no differences. Thus no evidence was found that pantothenate formed part of the molecule of ablastin using present methods of pantothenic acid determination.

Blood glucose studies corroborated the findings of Linton (1929) that *T. lewisi* infection did not affect the blood glucose level in rats. Salicylate treatment, as given, showed little or no increase in sugar levels. Salicylate treatment plus typanosome infection was found associated with a significant rise in blood sugar. This rise was probably due to a combined stimulatory effect by the salicylate treatment and trypanosomes on the blood glucose mobilizing tissues of the host.

DE LAJUDIE, P., PORTE, L. & BRYGOO, E. R. (1952). Sur un cas de kala-azar et de mélioïdose observé en Indochine. **[A case of double infection with melioidosis and leishmaniasis with experimental infection of a dog.]**—*Bull. Soc. Path. exot.* 45, 45-48. 2784

A human case in Indo-China was described and it was stated that a dog which was inoculated with blood from the case developed fatal melioidosis.—M.C.

KIRBY, H. (1951). **Observations on the trichomonad flagellate of the reproductive organs of cattle.**—*J. Parasitol.* 37, 445-459. [Author's summary slightly modified.] 2785

Studies of *Trichomonas foetus* were made from living material, observed especially by dark-field illumination, and from preparations, especially those made by silver impregnation technique. The observations add to previous knowledge of the flagellate certain details about the origin, grouping, and activity of the anterior flagella; the position, form, and relationship to the nucleus of the parabasal body; and the morphology and activity of the undulating membrane and the free posterior flagellum. The parabasal body appears solid in some silver preparations and has the form of an elongated ring in others. As in many other trichomonads the posterior flagellum is an acroneme type of flagellum. Some of the flagellates in culture show the results of morphogenetic abnormalities, having one or two extra anterior flagella, enlarged and misshapen nuclei, duplicated axostyles, and arrested cytoplasmic division. In a greater number of others the normal course of events in division may be studied. The outgrowth of new anterior flagella, giving two sets of three, is completed before cytosomal division. The two mastigonts, at first parallel and both directed anteriorly, come to lie in opposite directions and draw apart. This is essentially longitudinal division, although the body is not furrowed longitudinally as in the typical form of that division.

STABLER, R. M. (1951). **A survey of Colorado band-tailed pigeons, mourning doves, and**

wild common pigeons for *Trichomonas gallinae*.—*J. Parasitol.* **37,** 471-472. [Author's discussion slightly modified.] 2786

The infection rate of 36·6% for wild Colorado columbids, the recent outbreaks of serious trichomoniasis in the southern States of the U.S.A., and the presence of definitely pathogenic strains of *Tr. gallinae* in the Colorado birds, indicate the possibility of epidemics elsewhere, for in all probability the endemic rate for Colorado is not unique.

STABLER, R. M. (1951). **Effect of *Trichomonas gallinae* from diseased mourning doves on clean domestic pigeons.**—*J. Parasitol.* **37,** 473-478. [Author's summary copied *verbatim*.] 2787

Trichomonas gallinae from five sources of diseased doves, and from one healthy one, were put into five trichomonad-free domestic pigeons each. The trichomonads from the healthy dove produced no lesions. Those from the sick doves produced some canker in all recipients. Some strains were quite pathogenic, causing severe caseation or death in most of the pigeons receiving them.

The pigeons surviving their infections of dove-derived *T. gallinae* were then given highly virulent pigeon-derived *T. gallinae*. Whereas the virulent strain killed twenty-six of twenty-seven successive trichomonad-free control pigeons, not one of the survivors of the dove-infected pigeons became more than moderately ill when given this virulent strain.

The trichomonads from the five birds with the combined infections of the dove strain from Colbert Co., Ala. and the virulent pigeon-derived *T. gallinae* next were put into two clean pigeons each. Of the ten recipients, none escaped caseation, four were mildly caseous, one nearly died, and four were killed outright.

Three of the above birds which showed the mildest lesions were used as new trichomonad donors for one clean pigeon each. Two of these latter were again only mildly caseous, while the third one died.

WHITTINGTON, M. J. (1951). **The survival of *Trichomonas vaginalis* at temperatures below +37°C.** — *J. Hyg. Camb.* **49,** 400-409. [Author's summary copied *verbatim*.] 2788

When *Trichomonas vaginalis* in culture medium was exposed in three successive experiments to temperatures fluctuating between +7·2 and +13·0°C., between +10·5 and +15·5°C. and between +5·9 and +7·0°C., two strains survived for 3 days but no longer. One other strain used in these experiments lived for 1 day only, and two other strains did not survive for a single day.

One strain, kept in undiluted vaginal exudate, survived exposure to temperatures between +9·4 and +10·6°C. for 2 days but no longer, and one other strain lived for 2 days at temperatures between +2·2 and +8·9°C. Most strains do not live for as long as a day under these conditions.

One strain, kept in vaginal exudate diluted with an equal volume of tap water, survived exposure to temperatures between +4·4 and +6·7°C. for 2 days.

One strain in undiluted vaginal exudate survived freezing between −4·0 and 0·0°C. for 2 days.

WANATABE, M. (1950). **[Trichocidin, a new antibiotic for the treatment of trichomoniasis.]** —*J. Jap. vet. med. Ass.* **3,** 133-138. 2789

W. reported that a new antibiotic (trichocidin) was produced in Czapek-Dox culture medium or 1% lactose-peptone water by culturing a special strain of *Penicillium*. Trichocidin has trichomonicidal and trichomonastatic action against *Tr. foetus*. These actions of the antibiotic were tested *in vitro* and compared with many chemicals, and its efficacy was confirmed in repeated examination. In treatment of cows with trichocidin, with Lugol's solution and with formalin the percentage recoveries were respectively from 67–92%, 39% and 50%.

It was believed that improvement in methods of refining this new antibiotic would increase its practical value in treatment of bovine trichomoniasis.—KOGI SAITO.

ANON. (1950). Convegno Internazionale per lo studio della trichomoniasi del bestiame (sotto l' egida dell'Office International des Epizooties). Stazione Zooprofilattica Sperimentale di Roma 10-12 Novembre 1949. **[International congress for the study of trichomoniasis under the auspices of International Office of Epizootics.]**—*Zooprofiassi.* **5,** 49-63. 2790

An account of the inaugural meeting of the Congress held in Rome on the 10th-12th Nov. 1949. A paper by Ramon on the geographical distribution of trichomoniasis was read [see *V.B.* **21,** 1312.]—L. BADIALI.

I. BISHOP, A. & MCCONNACHIE, E. W. (1952). **Failure to produce resistance to chloroquine in *Plasmodium gallinaceum* in chicks.**—*Parasitology.* **42,** 52-56. 2791

II. BISHOP, A. & MCCONNACHIE, E. W. (1952). **Pamaquin resistance in a strain of *Plasmo-***

dium gallinaceum **and its relationship to other antimalarial drugs.**—*Ibid.* 57-64. [Authors' summaries slightly modified.] 2792

I. A strain of *Pl. gallinaceum* was treated for 16 months with chloroquine [7-chloro-4-(4-diethylamino-1-methyl-butylamino) quinoline], under conditions which previously had produced strains resistant to proguanil, sulphonamides and pamaquin, but no change in reaction to the drug occurred.

II. A four- to eight-fold increase in resistance to pamaquin was developed in a strain of *Pl. gallinaceum* in chicks. Pamaquin conferred no resistance to proguanil, sulphadiazine, mecaprine, chloroquine [7-chloro-4-(4-diethylamino-1-methyl-1-butylamino) quino line] or sotochin [7-chloro-4-(4-diethylamino-1-methyl-butylamino)-3-methylquinoline], but it conferred some resistance to pentaquine [8(5-isopropylaminoamylamino) - 6-methoxyquinoline] and to quinine.

An appreciable loss in resistance to pamaquin was observed in the pamaquin-resistant strain after it had been maintained in the absence of the drug in a patent state of infection, for a period of six months. No synergism was observed between pamaquin and quinine when these drugs were tested, in combined doses, upon active infections of *Pl. gallinaceum*.

Atchley, F. O. (1951). *Leucocytozoon andrewsi* **n. sp., from chickens observed in a survey of blood parasites in domestic animals in South Carolina.**—*J. Parasit.* 37, 483-488. 2793

Sixty-one chickens out of 400 were found to be carrying a species of *Leucocytozoon*. The parasite is described for the first time, and designated *Leucocytozoon andrewsi*. It was discovered during a survey of blood films of 1,638 various domestic animals and poultry in S. Carolina. This investigation was to identify oocysts and sporozoites found in two local mosquitoes, *A. quadrimaculatus* and *A. crucians*.

—D. W. Jolly.

Ruge, H. (1951). Encephalitozoon beim Meerschweinchen. [*Encephalitozoon* **in g. pigs.**] —*Zbl. Bakt. I.* (*Orig.*) **156,** 543-544. 2794

Encephalitozoon bodies were found in the brain only of a healthy g. pig inoculated intracerebrally with material from a human case of jaundice.—M. L. Clarke.

Pavlov, P. (1944). Epizootologische Untersuchungen über die Piroplasmose in Bulgarien. [**Piroplasmosis in Bulgaria.**]—*Z. Tropen. Parasitol.* **48,** 25-36. 2795

P. gave in numerous tables, covering mainly a ten-year period, figures of the incidence of piroplasmosis in horses, donkeys, cattle, sheep, goats, buffaloes, pigs, geese and fowls in Bulgaria. The parasites concerned included species of *Babesia* and *Theileria*.

—M. L. Clarke.

Cuboni, E. (1950). La toxoplasmosi. [*Toxoplasma* **infection.**]—*Clin. vet., Milano.* **73,** 321-329. 2796

A general discussion of the disease.

—B. Baldelli.

Kane, M. A. B. (1951). **Rumenal ciliates in Irish cattle.**—*Irish vet. J.* **5,** 51-55. 2797

Examination of the ruminal contents of cattle collected immediately after slaughter, revealed *Entodinium, Diplodinium* and *Epidinium* to be present. Seventeen species of *Entodinium*, mostly armoured forms, were found, *E. simplex, E. parvum* and *E. bovis* being the most common. Of the *Diplodinium*, 12 species of the sub-genus *Anoplodinium* were found, *A. denticulatum* being the most common. In addition ten species of *Eudiplodinium*, the commonest being *E. maggi*, and eight species of *Ostracodinium* were also recognized. It was noted that *Ostracodinium* was not present in all cattle and that the sub-genus *Polyplastron* was never found. The *Epidinium* were well represented, eight species being found with *E. caudatum caudatum* the commonest. *E. fasiculus* was not found. The genus *Ophryoscolex, Caloscolex* and *Butschlia* were not represented but two examples of holotrichous ciliates were found.

An examination of young calves showed that no ciliates were present up to six weeks of age. When introduced at one month, the ciliates survived, but occasionally ciliates were absent in calves of three months of age. One three-year-old cow also had no ciliates. No marked seasonal variation was found in the ciliate population of the rumen.

—J. A. Nicholson.

See also abstr. **2960** (sedimentation rate of *Trichomonas foetus* in bull semen); **3002-3003** (reports, New Zealand); **3004-3005** (reports, Southern Rhodesia); **3012** (report, F.A.O.); **3014** (report, U.S.A.).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

Minett, F. C. (1952). **The cost of foot-and-mouth disease [in Pakistan].**—*Empire J. exp. Agric.* **20,** 23-34. [Author's summary copied *verbatim*.] 2798

In attempting to assess the measurable loss to a country due to foot-and-mouth disease, Pakistan has been taken as an example. The annual loss through various factors connected

with the disease is estimated to be at least Rs 5,200,000 (£390,000), or roughly Rs 17,000 per 100,000 of a cattle population, 17 per cent of which are buffaloes. It must be emphasized that the estimations necessarily omit losses from various causes that cannot be measured.

HANSEN, A., SCHMIDT, S. & HOLM, P. (1948). Irradiation par des ondes ultraviolettes (ultra-courtes) d'une suspension de virus aphteux adsorbé par l'hydroxyde d'aluminium. [**Ultra-violet irradiation of suspensions of aluminium hydroxide adsorbate foot and mouth disease virus.**]—*C.R. Acad. Sci., Paris.* **227,** 1425-1427. 2799

The diluted suspension of g. pig active virus containing aluminium hydroxide was irradiated for from 180 sec. to 19 min. The shortest irradiation was most active in producing a product which had considerable antigenic activity in g. pigs.—R. MARSHALL.

COSTA, A. (1951). Il primo focolaio di malattia d'Aujeszky in Sardegna. [**Aujeszky's disease in Sardinia.**]—*Profilassi.* **24,** 145-150. [English, French and Italian summaries.] 2800

C. reported Aujeszky's disease in four Siamese cats which had been fed for five days raw meat from the refrigerated carcass of a pig that had died. P.M. examintion of the pig had revealed typical lesions of swine fever complicated with *Salmonella cholerae-suis* infection.

C. discussed the possibility of an association in the animal body of the virus of swine fever with that of Aujeszky's disease.

Aujeszky's disease had not previously been reported from Sardinia.—F.E.W.

DIVO, A., GOLDMAN, C. & LUGO, A.(1951). La enfermedad de Aujeszky (seudorrabia) en Venezuela. [**Aujeszky's disease in Venezuela.**]—*Bol. Inst. Invest. vet., Caracas.* **4,** 599-616. [Abst. from English summary.] 2801

Aujeszky's disease was identified in two dogs in Venezuela. The virus was passaged through experimental animals and identified by the symptoms observed in these animals and by cross-neutralization tests. It appeared to pass an EK-Seitz pad but not a Berkefeld-N filter. Positive results in serological tests established the presence of the disease in indigenous swine. —F. B. LEACH.

FERMI, C. (1950). La rabbia. [**Rabies.**] Vols. I & II. pp. xlv + 642 & 625-1342. Siena: Istituto Sieroterapico e Vaccinogeno Toscano "Sclavo". L.12000. 2802

This encyclopaedic work in two volumes includes a bibliography which covers 130 pages, and deals with the literature up to 1948. There are 44 chapters dealing with the disease both in man and in the domestic animals. Chapter 33 deals with methods of immunization; it describes thirteen main methods and a number of modifications of these. The newer methods using egg-adapted strains of the virus and virus treated with ultra-violet light are not included, probably because the manuscript had been completed before the newer methods had been published.

A valuable reference book, particularly to earlier literature up to the time of the second world war, its value would have been increased by a more extensive index.—M.C.

CABRAL, A. (1951). Alguns aspectos práticos da luta contra a raiva. [**The control of rabies in Portugal.**]—*Rev. med. Vet., Lisboa.* **46,** 251-258. 2803

An account of rabies control in Portugal based on 20 years of personal experience.

KOPROWSKI, H. (1949). **Experimental studies on rabies virus.**—*Canad. J. publ. Hlth.* **40,** 60-67. 2804

The studies reported were motivated by the need for an efficient "single injection" method of immunization of dogs and the occurrence of postvaccinal paralysis. The egg-adapted Flury strain of virus was chosen for study as it had most promise for the development of a vaccine which would meet the above requirements. Some of its characteristics are described. G. pigs were given lyophilized suspensions of embryos infected with the Flury strain; vaccinated animals and groups of non-vaccinated controls being challenged at intervals with street virus. The vaccinated g. pigs had a high degree of resistance but there was 100% mortality among the controls. Of 66 dogs vaccinated with the Flury strain only two succumbed to massive challenge inoculation, whereas 23 of the 37 control dogs died. The two vaccinated dogs that died were from a group of ten immunized with the highest tested egg passage level. Furthermore, the LD_{50} titre in mice of this particular preparation was the lowest one obtained. The duration of immunity with the Flury strain is now under study.

The second part of the paper was directed to the problem of protecting human beings against rabies, (a) to identify the paralitogenic factor in normal brain tissue and if successful to purify the currently employed rabies vaccines; (b) in case of failure to develop a procedure which would be as effective as the Pasteur treatment but would not carry with it the danger of neuroparalytic accidents.

(a) The factor or factors responsible for the paralitogenic properties were not determined.

(b) Antirabies serum was produced in rabbits by repeated injections of the egg-adapted Flury strain of virus. The serum was fractionated and concentrated. It was found to be a potent product and protected hamsters where vaccine, in a dilution calculated on a weight basis as corresponding to Pasteur treatment of human beings, failed to protect. K. considers that the evidence in favour of serum treatment is so conclusive, especially as the danger of neuroparalytic accident does not exist, that a thorough field trial of serum prophylaxis is warranted.—P. J. G. PLUMMER.

AHUJA, M.-L. (1950). **Studies on rabies. II. Antirabies treatment with carbolized vaccine: A review of the work in India. A simplified classifiation suggested for purpose of treatment.**—*Indian J. med. Res.* **38,** 483-488. [For previous part, see *V.B.* 22, 2740.] **2805**

The author considers the existing classification of patients for purposes of treatment to be unsatisfactory and complicated. He suggests a simplified classification and schedule of dosage using 5% Semple vaccine for universal adoption in India and recommends 2·0 ml. daily for seven days for cases that have been licked only while the dose for cases that have been bitten varies from 3·5 to 7·0ml. for 14 days.

—P. R. K. IYER.

D'SILVA, C. B. (1950). **Studies on rabies. III. A note on the preparation and storage of a local "standard challenge rabies virus".**—*Indian J. med. Res.* **38,** 489-491. [Author's summary slightly modified.] **2806**

A 20% emulsion of fixed virus sheep brain (Paris strain) in 50% neutral glycerin in distilled water was stored at 0°C. and its virus content was titrated periodically. The infective titre remained more or less constant and the virus was found suitable for use as a local "standard challenge" over a period of 21 months.

BROOKS, A. G. (1950). **Studies on rabies. IV. Some personal observations.**—*Indian J. med. Res.* **38,** 493-497. **2807**

B. recorded some interesting observations made during his 25 years' association with antirabic work with special reference to symptoms in man and animals and on the difficulty sometimes experienced in distinguishing Negri bodies from other inclusion bodies.—P. R. K. IYER.

COPPINI, R. (1950). L'episodio di vaiuolo ovino in provincia di Latina. **[Sheep pox epidemic in the Latinian province of Italy.]**—*Zooprofilassi,* **5,** 560-570. **2808**

The State prophylactic measures by which the spread of sheep pox was controlled in the Latinian Province were reported. C. stated that the disease had been imported into Italy in 1944-45 from North Africa by the Allied forces.—B. BALDELLI.

SMITH, W., WESTWOOD, J. C. N. & BELYAVIN, G. (1951). **Influenza. A study of four virus strains isolated in 1951.**—*Lancet.* **261,** 1189-1193. [Authors' summary copied *verbatim.*] **2809**

The isolation of four new virus strains during the 1951 influenza epidemic is reported. They are very closely related antigenically to each other and to the standard A-prime reference strain F.M.1. The new strains differ from all previously described influenza viruses by their susceptibility to a second haemagglutination inhibitor contained in normal rabbit serum. The term β inhibitor is proposed for this second inhibitor to distinguish it from the normal type (α inhibitor) which is active against most strains of virus. The two inhibitors show qualitative differences in respect of their action against viruses and their susceptibility to destruction by R.D.E. [receptor destroying enzyme].

Two of the new strains possess unusual virulence for the chick embryo, causing death of the embryo with characteristic lesions after amniotic inoculation. They are also readily adaptable to mice. Evidence of neurotropism is afforded by the strain more intensively studied.

The implications of the anomalous behaviour of the new strains are briefly discussed.

GOTTSCHALK, A. & PERRY, B. T. (1951). **Ovomucin: a substrate for the enzyme of the influenza virus. III. Enzymic activity as an integral function of the influenza virus particle.**—*Brit. J. exp. Path.* **32,** 408-413. [Author's summary copied *verbatim.*] **2810**

By three independent procedures of influenza virus purification, removing up to 99% of the nitrogen of the crude virus preparation, the ratio haemagglutinin titre/enzymic activity was found to be not significantly changed. It was further observed that the inhibitor of virus haemagglutination, shown by Edney and Isaacs to be present inside the normal host cell (chorio-allantoic membrane) and to be destroyed upon virus infection, survives, practically undiminished, thorough grinding of the membrane and incubation at 37° for 18 hours. From these results it is concluded that the enzyme associated with the influenza virus is an

integral part of the virus particle not pre-existing in the normal host cell.

FINDLAY, G. M. & HOWARD, E. M. (1951). **Notes on Rift Valley fever.**—*Arch. ges. Virusforsch.* **4,** 411-423. [In English, Authors' conclusions slightly modified.] **2811**

Rift Valley fever produces a long continuing immunity in man which continues for at least 19 to 20 years after an attack. It thus resembles Yellow Fever in causing a long immunity. The larval form of *Taenia crassicollis* in the mouse liver can absorb Rift Valley fever virus.

Treatment of mice with 2:3-dimercaptopropanol (BAL) does not prevent the occurrence of liver necrosis in mice caused by the Rift Valley Fever virus. Rift Valley Fever virus inactivated by mercuric chloride cannot be reactivated by means of BAL. Neither aureomycin nor terramycin has a curative action on Rift Valley Fever infection in mice. Both the hepatotropic and neurotropic forms of Rift Valley fever virus are inactivated by 25% ether. Interference between the neurotropic and hepatotropic strains of Rift Valley Fever is shown to occur: hepatotropic virus or neurotropic virus inactivated by ether will interfere with the action of living hepatotropic virus. Reconversion of the neurotropic into the hepatotropic strain can occur as a result of desiccation and storage of mouse brain at low temperatures. Even after more than 90 mouse brain passages intraperitoneal inoculation of neurotropic virus into mice may be followed by circulation of virus and the development of encephalomyelitis. For use in immunization of sheep and cattle infected mouse brain after considerably more than 100 brain-to-brain passage would appear to be essential. Neurotropic Rift Valley Fever virus injected intraperitoneally may be used to exalt the action of a member of the encephalomyocarditis group of viruses.

MUIR, A. D. (1951). **Orf. Report of a case in New Zealand.**—*N. Z. med. J.* **50,** 509-510. **2812**

A brief report of a case of orf in a farmer.
—G. B. S. HEATH.

WENCKEBACH, G. K. & DE WENCKEBACH, B. W. (1950). La Marwen encefalomielitis. Un virus nuevo, patógena para el hombre. **[A virus causing encephalomyelitis in the nutria and transmissible to man.]**—*Rev. Fac. Ciencias. Méd.* **8,** 12. [German summary.] **2813**

The authors described a case of encephalomyelitis in man, following infection with virus which came originally from a nutria and had since been passaged 73 times. Infection was probably by inhalation. The virus was reisolated from the patient's serum.
—I. W. JENNINGS.

THOMPSON, R., HARRISON, V. M. & MEYERS, F. P. (1951). **A spontaneous epizootic of mouse encephalomyelitis.**—*Proc. Soc. exp. Biol., N.Y.* **77,** 262-266 [Authors' summary copied *verbatim.*] **2814**

A spontaneous epizootic of encephalomyelitis which killed 62% of 240 uninoculated mice is described. A virus was isolated which resembles GD VII virus in its properties, and which is antigenically identical or very similar to the GD VII virus.

ISHII, S., TANAKA, K., KOBAYASHI, K., AKIYAMA, Y. & SATO, S. (1949). **[Anaemic substance found in serum of horse with equine infectious anaemia. III. Findings in a rabbit injected with serum from a diseased horse.]** *21st Rep. Govt. exp. Sta. Anim. Hyg. Tokyo.* 1949. pp. 11-26. [Abst. from English summary.] **2815**

When injected into rabbits, the 'anaemic substance' in the serum of horses with equine infectious anaemia produced a peripheral anaemia by causing retention of red blood cells in the spleen, liver and bone-marrow. The mechanism appeared to be controlled by the sympathetic nervous system.—CLIVE BRIGGS.

STECK, W. (1951). Studien über die infektiöse Anämie (Vallée'sche Krankheit) der Pferde. VII. Die Beurteilung des Zungenbefundes unter Berücksichtigung der epizootologischen Verhältnisse. **[Equine infectious anaemia. VII. Sublingual haemorrhages and regional incidence.]**—*Schweiz. Arch. Tierheilk.* **93,** 665-683. [English, French and Italian summaries. Abst. from authors' summary.] **2816**

The regional incidence of equine infectious anaemia indicates that sublingual haemorrhages are more a typical symptom of infection than a sign of clinical disease. So far, no correlation has been observed between a positive result of sublingual examination and other diseases such as strangles, equine pleuro-pneumonia, influenza and respiratory diseases. [See also *V.B.* **20,** 1258-1264.]

PIERCY, S. E. (1951). **Some observations on African horse-sickness including an account of an outbreak amongst dogs.**—*E. Afr agric. J.* **17,** 62-64. **2817**

P. described 31 cases, seven fatal, of African horse sickness in a pack of hounds, after feeding uncooked horse-meat from animals dead of the disease.—CLIVE BRIGGS.

I. Carda Aparici, P. (1951). Sobre la patogenia de la peste porcina. Protrombinemia. Primera comunicacion: tiempo de protrombina. [**Prothrombinaemia and the pathogenesis of swine fever.**]—*An. Fac. Vet., Madrid.* **3**, 111-119. [English, French and German conclusions.] **2818**

II. Gallego García, E. & Carda Aparici, P. (1951). Sobre la patogenia de la peste porcina. II. Interpretacion de la leucopenia a traves del mielograma. [**Pathogenesis of swine fever. Leucopenia as seen in marrow smears.**]—*Ibid.* 142-167. [English, French and German summaries.] **2819**

I. Curves of normal prothrombin times in swine resemble those of other domestic animals. Inoculation with swine fever virus invokes a response by which the activity of the liver in regard to prothrombin production is increased. In non-immunized animals this activity quickly causes a condition of prothrombin deficiency or hypoprothrombinaemia. This inability of the blood to clot leads to the spontaneous bleeding characteristic of swine fever.

There is a parallel between prothrombin time curves in the initial seven days of swine fever and rectal temperature curves.

II. In experimental swine, marrow smears revealed a progressive increase in cell count in the white series (immature) reaching a maximum four days after infection, this being accompanied by proportional decreases in the red series and in the adult blood series; a rise in myeloid/erythroid ratio with a maximum at the fourth day; an increase in the number of neutrophile leucocytes up to the fourth day and in the number of myelocytes. There was an increase in the number of metamyelocytes and "stab" cells, the latter declining to below the control level at the fourth day. The marrow cell count was displaced to the left. There was a rapid decrease in the number of lymphocytes.

These abnormalities are consistent with the theory of the central origin of leucopenia (as distinct from peripheral origin).—K. J. Sinclair.

Bianchi, E. (1951). Osservazioni e ricerche intorno ad una sindrome dei suini comunemente attribuita al morbo di Teschen. [**A fatal disease in swine resembling porcine encephalomyelitis.**]—*Riv. Med. Vet. Zootec.* **3**, 271-290. [English, French and German summaries. Abst. from English summary.] **2820**

An account of a fatal disease resembling porcine encephalomyelitis seen in Italy during recent years.

Kress, F. (1952). Ergebnisse von Schutzimpfungen mit formolisierter Organvakzine gegen die Hundestaupe. [**Results obtained with formolized vaccine against dog distemper.**]—*Wien. tierärztl. Mschr.* **39**, 13-22. [English, French and Italian summaries.] **2821**

A suspension of lung tissue of distemper patients was incubated with formaldehyde. The product, when used as a vaccine for young dogs, resulted in only 34 deaths from the 209 cases of illness among 5,484 dogs inoculated; the vaccine was harmless and gave immunity for at least a year.—R. Marshall.

Goret, P., Lucam, F., Joubert, L. & Buffet, A. (1950). Pouvoir pathogène pour le chien du virus de l'hépatite contagieuse (fox encephalitis) adapté au furet (Note préliminaire). [**Pathogenicity for dogs of ferret-adapted virus of canine virus hepatitis.**]—*Bull. Soc. Sci. vét., Lyon.* **52**, 123-128. **2822**

Description of a series of experiments in which it is claimed that ferret-adapted canine hepatitis virus is transmissible to dogs and gives rise to clinical symptoms and macroscopic lesions indistinguishable from natural disease in the dog.—G. V. Laugier.

Larin, N. M. (1951). **Studies on the agent of canine virus hepatitis (Rubarth's disease). I. Complement-fixation and precipitin tests.**—*J. Hyg., Camb.* **49**, 410-426. [Author's summary copied *verbatim*.] **2823**

The preparation of purified antigen from canine hepatitis virus sources is described. This includes the manufacture of crude antigenic suspensions and their subsequent treatment to remove non-specific interfering substances. The solubility of the antigenic substance in various solvents has been studied and its stability is briefly discussed. The complement-fixation and precipitin tests are described in detail as they have been used for the virus studies.

Various virus-rich body tissues and fluids have been serologically tested, and the identity of antigens prepared from them as well as the antigenic similarity of the various strains of canine hepatitis virus have been established.

Evidence has been recorded that canine hepatitis virus produces serologically distinct antibodies, as measured by the precipitin and complement-fixation reactions in the sera of dogs during convalescence. The titres of precipitating and complement-fixing antibodies in hyperimmune dog sera appeared to run parallel to one another.

Parry, H. B., Larin, N. M. & Platt, H. (1951). **Studies on the agent of canine virus**

hepatitis (Rubarth's disease). II. The pathology and pathogenesis of the experimental disease produced by four strains of virus.—*Ibid.* 482-496. [Authors' summary copied *verbatim*.] 2824

The main clinical and pathological features of the naturally occurring canine virus hepatitis were reproduced in dogs, using four strains of virus from different parts of the world and by various routes of inoculation. Young puppies seemed to be most susceptible. A kitten was also infected. An unusual type of kerato-conjunctivitis occurred after both intraocular and intraperitoneal injection. Specific antigen was detected in the blood for short periods at irregular intervals during the acute stages of the illness and up to 6 months after complete clinical recovery. Specific antibodies were detected in the blood of recovered animals 3 to 10 weeks after the inoculation and 2–6 weeks after the onset of clinical illness. The four strains of virus were similar in their serological and immunological characters. Evidence is presented that virus can persist for some months in recovered animals. Virus was demonstrated in lice collected from affected dogs. The importance of clinically inapparent infections is stressed.

Lucam, F. & Goret, P. (1950). Premiers essais d'ovoculture du virus de l'hépatite contagieuse du chien (fox encephalitis) adapté au furet (Note préliminaire). **[First attempts to culture ferret-adapted virus of canine virus hepatitis in chick embryos. (Preliminary note).]** —*Bull. Soc. Sci. vét., Lyon.* **52,** 129-130. 2825

Chick embryos, 6–7 days old, were used and 39 successful serial passages were obtained. Canine hepatitis virus was markedly attenuated after the first passage.—G. V. Laugier.

Larin, N. M. (1951). **Preparation of the specific purified antigen of canine hepatitis virus and anti-serum for serological studies.** [Correspondence.]—*Nature, Lond.* **168,** 745-746. 2826

L. described the preparation of the antigen of canine hepatitis virus, and some of its properties, and of the corresponding antiserum. The techniques of complement fixation, precipitin ring and quantitative flocculation tests with these reagents were also given.

—Clive Briggs.

Gledhill, A. W. & Andrewes, C. H. (1951). **A hepatitis virus of mice.**—*Brit. J. exp. Path.* **32,** 559-568. [Authors' summary copied *verbatim*.] 2827

A virus (MHV) is described causing a fatal hepatitis in young mice. MHV was present in the liver, blood, kidneys, faeces and urine of infected mice. The virus differs from human hepatitis viruses in its lability and the short incubation period of the infection. One strain of mice (VS) was more susceptible to overt disease than another strain (P). The C3H and C57 strains appear to resemble the P strain in this respect. Serial passage has activated latent MHV from the liver, kidneys, blood and faeces of apparently normal mice of the less susceptible P strain.

Infections with MHV were prevented by aureomycin and terramycin. Chloromycetin and sulphamerazine exerted a small effect; while penicillin and streptomycin exerted no effect under the conditions investigated.

Durrell, W. B. (1952). **Differential diagnosis of respiratory diseases in poultry.**—*Canad. J. comp. Med.* **16,** 1-11. 2828

Clinical and laboratory aspects were presented in tabular form. D. concluded that an accurate differentiation of infectious coryza, laryngotracheitis, infectious bronchitis, Newcastle disease and chronic respiratory disease can be made by the use of virus isolation, the haemagglutination-inhibition test and bacteriological techniques, interpreted in the light of a good clinical history.—R. Gwatkin.

Crowther, R. W. (1952). **Newcastle disease in Cyprus.**—*Vet. Rec.* **64,** 91-93. [Author's summary copied *verbatim*.] 2829

A widespread epidemic of Newcastle disease in Cyprus is described. The steps taken to control this epidemic consisted in quarantine and sanitary measures, combined with mass vaccinations in infected areas, using an attenuated live vaccine prepared in the State of Israel.

Within one year from the commencement of these measures the disease appeared to have died out, and no further cases were detected during the following 16 months.

Kilham, L., Morgan, C. & Wyckoff, R. W. (1951). **The electron microscopy of chick embryo membranes infected with Newcastle disease.**—*J. Immunol.* **67,** 523-528. [Authors' summary copied *verbatim*.] 2830

Sections of chorioallantoic and amniotic membranes infected with Newcastle-disease virus show spheres and rods on the surface of the epithelial cells when examined by the electron microscope. These particles are morphologically similar to the elementary bodies seen in ultracentrifuged preparations of virus from infected egg fluids. Changes in infected cells

include thickening of the superficial membrane followed by vacuolation and increased density of the cytoplasm.

EVANS, A. S. (1951). **The occurrence of Newcastle disease antihemagglutinin in human sera and its relationship to mumps virus.**—*J. Immunol.* **67**, 529-538. [Author's summary and *addendum* slightly modified.] **2831**

A serological and epidemiological survey of poultry workers exposed to Newcastle disease virus (NDV) through infection in their flocks failed to reveal evidence that this agent had been responsible for human illness in this group.

An inhibitor of haemagglutination by NDV was found in sera from such exposed individuals and just as frequently in sera from individuals not similarly exposed. The occurrence of this inhibitor was found to be closely related to the occurrence of mumps antibodies. Cross absorption studies of such sera with NDV and mumps virus suggested that the NDV inhibitor represented an immunological overlap to infection by mumps virus. Similar interrelationships were not demonstrable in such sera by cross absorption experiments with influenza virus, nor in absorption experiments with specific antisera to NDV or mumps virus.

NDV may share antigenic components similar to or identical with antigenic components present in other infectious agents.

Addendum

Since this work was completed Jordan and Feller [*V.B.* **21**, 1017] have published additional evidence of the close biologic relationship between antibodies to NDV and mumps in human sera. They found that the presence of antihaemagglutinating and complement fixing factors for the 4F strain of NDV was almost always dependent on the co-existence of mumps antibodies. The reverse of this was not necesarily true as shown by the fact that only 39% of their 98 sera containing mumps antibodies also contained NDV complement fixing factors. They suggest a common antigen as an explanation for the immunologic cross reactions with these viruses.

VAN ROEKEL, H., CLARKE, M. K., BULLIS, K. L., OLESIUK, O. M. & SPERLING, F. G. (1951). **Infectious bronchitis.**—*Amer. J. vet. Res.* **12**, 140-146. **2832**

Immunization of poultry flocks against infectious bronchitis was achieved by the artificial exposure of young healthy birds to infectious virus.—CLIVE BRIGGS.

DANE, D. S. (1948). **A disease of Manx shearwaters** (*Puffinus puffinus*).—*J. Anim. Ecol.* **17**, 158-164. [Author's summary copied *verbatim.*] **2833**

An epizootic among Manx shearwaters (*Puffinus p. puffinus*) was observed on Skomer island in September 1947. It had many features in common with an epizootic observed there in the autumn of 1946; the chief point of difference between the epizootics being the absence of any cases of conjunctivitis in 1947.

The signs of the disease were found in juvenile shearwaters, generally between 70 and 75 days old.

The principal lesions of the disease were blisters on the webs of the feet and small areas of consolidation in the lungs.

Fatality was probably high; the morbidity rate varied with the locality.

Evidence was obtained that the incubation period of the disease was about 8 days or less, and that the most likely mode of transmission was by contact of the webbed foot with soil or stones contaminated from burst blisters.

The manner in which an epizootic arises is obscure, and it is possible that other hosts exist besides the shearwater.

MILES, J. A. R. & STOKER, M. G. P. (1948). **Puffinosis, a virus epizootic of the Manx shearwater** (*Puffinus p. puffinus*). [Correspondence.]—*Nature, Lond.* **161**, 1016-1017. **2834**

Outbreaks of disease in young Manx shearwaters characterized by large blisters on the web of the feet, by conjunctivitis, spasm of the legs and pneumonic patches in the lungs have been observed on Skomer island off the Pembrokeshire coast. Inoculation of blood from a sick shearwater on to the chorio-allantoic membrane of chick embryos caused lesions suggestive of a virus infection. Egg passaged material inoculated into ducks by light scarification of the web of the foot caused a disease closely resembling the natural disease as seen in shearwaters. Virus inoculated by scarification into the breasts of pigeons caused development of large blisters, but did not produce any lesions in a cockerel or in chickens. It was not possible to produce lesions by inoculation of any of the usual laboratory rodents. [See also *V.B.* **22**, 1359.]—M.C.

GIROUD, P. & JADIN, J. (1950). Essais d'isolement de souches de fièvre Q au Ruanda-Urundi du lait de vache, du cerveau de chèvres et de tiques d'animaux domestiques et sauvages. **[Isolation of *Rickettsia burneti* from cows' milk, goat brains and ticks.]**—*Bull. Soc. Path. exot.* **43**, 672-673. **2835**

Following a human outbreak of Q fever the livestock were examined and found to give

agglutination and complement fixation reactions with *Rickettsia burneti*. Milk of zebu cows, suspensions of brain and spleen of goats, and of ticks from cattle and dogs, when injected into g. pigs, caused the formation of antibodies against *R. burneti*.—A. Mayr-Harting.

I. Scheu, O. (1951). Serologische Untersuchungen von Tierseren anlässlich einer menschlichen Q-Fieber-Epidemie. **[Serological examination of animals during a human Q-fever epidemic.]**—*Berl. Münch. tierärztl. Wschr.* No. 1. pp. 16-18. **2836**

II. Caporale, G. (1951). Einige Bemerkungen zu dem Artikel von O. Scheu, Stuttgart: "Serologische Untersuchungen von Tierseren anlässlich einer menschlichen Q-Fieber-Epidemie." **[Remarks on O. Scheu's paper on serological examination of animals during a human Q fever epidemic.]**—*Ibid.* No. 8. pp. 155-156. **2837**

I. Following the importation of some cattle from Dortmund an outbreak of Q fever involving 200 human cases ocurred in a village. Several weeks after the end of the epidemic six new cases occurred on two farms, 2–3 weeks after cows on those farms had calved. The complement-fixation titre of the cows two months later was, however, only 1 : 8 and 1 : 16 respectively.

II. The experience in the Italian Research Centre is that infected animals during calving or lambing are amongst the main sources of human infections. The titre of infected cows falls very rapidly after calving.

—A. Mayr-Harting.

Giunchi, G. & Visco, G. (1950). Primi risultati di ricerche sierologiche sulla infezione da *Coxiella burnettii* in varie specie di animali domestici. **[Serology in *Rickettsia burneti* infection in various species of domestic animals.]**—*Boll. Soc. ital. Biol. sper.* **26,** 950-952. **2838**

In serological tests on horses, cattle, sheep, goats and pigs positive reactors were found only among sheep and goats; horses, cattle and pigs gave negative reactions. Positive reactions were 65% in goats and 26% in sheep.

—B. Baldelli.

Caporale, G. & Mantovani, A. (1951). Il significato epidemiologico del parto nella diffusione della febbre Q. **[Parturition in the spread of Q fever.]**—*Clin. Vet., Milan.* **74,** 129-133. [English summary.] **2839**

In a study of three outbreaks of Q fever in human beings, it was found that the infection was connected with massive elimination of *Rickettsia burneti* by infected animals during parturition.—B. Baldelli.

Reczko, E. (1950). Über Ausscheidung und Verweildauer des Q-Fieber-Erregers bei experimentell infizierten Meerschweinchen. **[Excretion and duration of infection with *Rickettsia burneti* in experimentally infected g. pigs.]**—*Zbl. Bakt. I.* (*Orig.*) **156,** 81-84. **2840**

R. burneti was excreted in the urine of infected g. pigs from the 4th to the 12th day after the beginning of fever, but it could still be found in the emulsified organs (liver, spleen and kidneys) 526 days after the return to normal temperature.—A. Mayr-Harting.

Ormsbee, R. A. & Pickens, E. G. (1951). **A comparison by means of the complement-fixation test of the relative potencies of chloramphenicol, aureomycin, and terramycin in experimental Q fever infections in embryonated eggs.**—*J. Immunol.* **67,** 437-448. [Authors' conclusions copied *verbatim.*] **2841**

The complement fixation test can be used as a technique for the comparison of antirickettsial substances in experimental Q fever infections of chick embryos. The complement fixation technique produced more reproducible and regular data on antibiosis than did the stained smear technique. The antibiotics examined can be ranked in the following order of descending effectiveness with respect to experimental Q fever in chick embryos: terramycin, aureomycin, chloramphenicol, streptomycin, penicillin G. When compared at an equimolar dose of 4 to 5 $\times$ 10^{-4} m M, chloramphenicol prevented the appearance of a positive complement fixation titer for 1 day; aureomycin, 4 days; and terramycin, 10 days. The delay in occurrence of a positive complement fixation titer was proportional to the log of the dose in millimols of antibiotic in the case of chloramphenicol, aureomycin and terramycin. Although the lower levels of chloramphenicol, aureomycin and terramycin delayed the appearance of measurable CF titers, once a measurable titer was observed, the subsequent rate of CF titer increase appeared to be independent of the previous history of antibiotic administration. In the higher dose ranges of chloramphenicol, aureomycin and terramycin, not only was the time of first appearance of CF titers delayed, but the subsequent increases in CF titers were slower than in the untreated controls.

Smith, J. D. & Stoker, M. G. P. (1951). **The nucleic acids of *Rickettsia burneti*.**—*Brit. J. exp. Path.* **32,** 433-441. [Authors' summary copied *verbatim.*] **2842**

Suspensions of *R. burneti* have been prepared which are believed to contain little, if any, material derived from the host cell. The compositions of the nucleic acids present in the rickettsiae in these preparations have been examined quantitatively, using paper chromatography and spectrophotometric methods.

R. burneti contains 9·7% (dry weight) deoxypentose nucleic acid [DNA—Ed. *V.B.*] and about 4·3% ribonucleic acid [RNA—Ed. *V.B.*]. Different preparations have the same content of DNA but the amounts of RNA differ. The nucleic acids do not account for all the phosphorus in the organisms. The purine and pyrimidine composition of the rickettsial DNA has been determined. No 5-methyl cytosine could be detected in this nucleic acid. Deoxypentose nucleic acid has been isolated from normal chick embryos and its purine and pyrimidine composition determined. The proportions of adenine, guanine, cytosine and thymine in this nucleic acid do not differ appreciably from that of the rickettsial DNA. The embryo nucleic acid, however, contains 5-methyl cytosine amounting to 4·3% of the cytosine content. The amino-acids present in the rickettsiae have been identified by paper chromatography.

Rickard, E. R. & Worth, C. B. (1951). **Complement-fixation tests for murine typhus on the sera of wild-caught cotton rats in Florida.**—*Amer. J. Hyg.* **53**, 332-336. 2843

Complement-fixation tests with sera from 712 wild cotton rats were compared with sera from the common wild rat. A titre greater than 1:64 was never obtained with cotton rat sera whereas titres up to 1:2048 were commonly observed in sera from the common rats. The reaction of cotton rat sera with the antigen was shown to be non-specific so that it appears that the cotton rat is not a natural reservoir of murine typhus.—J. A. Nicholson.

Smadel, J. E., Ley, H. L., Jr., Diercks, F. H., Traub, R., Tipton, V. J. & Frick, L. P. (1951). **Immunization against scrub typhus. I. Combined living vaccine and chemoprophylaxis in volunteers.**—*Amer. J. Hyg.* **53**, 317-325. 2844

Jackson, E. B. & Smadel, J. E. (1951). **Immunization against scrub typhus. II. Preparation of lyophilized living vaccine.**—*Ibid.* 326-331. 2845

I. The intradermal inoculation of 25 mouse infectious doses of *Rickettsia tsutsugamushi* produced a disease in human beings indistinguishable from naturally acquired scrub typhus. The clinical symptoms can be suppressed by the oral administration of 3·0 g. chloramphenicol given four times from the eighth to the 21st day after inoculation.

II. A study of the production of attenuated, lyophilized *R. tsutsugamushi* vaccine showed that a medium containing 0·2 M. of sucrose plus appropriate buffer salts is superior to the skim-milk medium usually employed. The vaccine can be stored for months and transported long distances without deterioration.

—J. A. Nicholson.

Smadel, J. E., Warren, J., Evans, E. A., Jr., Horsfall, F. L., Jr., Sabin, A. B., Melnick, J. L., Huebner, R. J. & Lennette, E. H. (1950). **Symposium on viral and rickettsial diseases.**—*Bact. Rev.* **14**, 193-258. 2846

Smadel introduced the symposium and discussed the laboratory facilities for the diagnosis of viral and rickettsial diseases. A number of serological diagnostic laboratories are now carrying out tests for influenza, the psittacosis-lymphogranuloma group, epidemic and murine typhus and Q fever. S. emphasized the need for virus diagnostic laboratories, closely connected with research units, which would be capable of conducting the more elaborate techniques. Further research is required on the early diagnosis of virus diseases.

Warren contributed a historical review of the progress made in the purification of animal viruses. He gave in tables (a) the dates at which certain of the viruses have been purified, and (b) details of separation of large and small viruses by means of protamine precipitation. The complex nature of animal viruses was contrasted with the crystalline tobacco mosaic and certain other plant viruses. The virus-like properties of certain 'normal constituents' of tissue and the difficulty of distinguishing these particles from the smaller viruses under the electron microscope were emphasized.

By using labelled elements on a *Bact. coli*-medium-bacteriophage system Evans showed that the main contribution of the host to the bacteriophage consists of nucleic acids, the remaining protein constituents of the bacteriophage being derived from the medium. He inferred that the virus nucleoprotein resembles the normal bacterial nucleoprotein-directing element closely enough to occupy the place of the latter in the metabolic machinery of the host cell. It then alters the nucleoprotein synthesized to virus nucleoprotein which accumulates and leads to the destruction of the host cell.

Horsfall discussed the control of virus diseases. As with bacterial diseases this can

be accomplished by three different procedures: (a) elimination of the reservoir of infection or the means of transmission to the host, (b) specific immunization against the agent or the poisons elaborated by it and (c) therapy with substances of biological or chemical origin which are active against the agent. (Group (c) includes the use of the interference phenomenon.) It seems doubtful that the eventual control of viral diseases will require means fundamentally different from those already devised.

By cross-immunity tests on human volunteers, (neutralization and complement-fixation tests) Sabin had established that two strains of dengue virus exist. He also showed that a specific heat stable antigen and a non-specific heat labile antigen are present. In patients affected with dengue fever, complement-fixing antibodies for yellow fever, West Nile and Japanese B encephalitis also develop, indicating a possible generic relationship between these groups and dengue fever.

From studies of the antigenic responses in experimentally infected monkeys and in patients surviving the clinical disease, Melnick showed that, following infection with poliomyelitis virus, there is a persistent immunity to the specific infecting strain but little or no immunity to other strains of the virus. The relationship between the various strains of encephalomyocarditis and the Coxsackie groups of viruses and poliomyelitis virus was discussed.

Huebner described rickettsialpox, a disease of mice which produces a pox-like disease in human beings in mouse-infested buildings in New York and which is transmitted by a mite, *Allodermanyssus sanguineus*.

The association between Q fever infections in dairy catte and the human population in Southern California was also described.

Lennette reviewed newer knowledge of the older rickettsial diseases. In Northern California outbreaks of Q fever have been associated with sheep and goats rather than with cattle.

Regarding prophylaxis of the human rickettsial diseases, efficient vaccines exist for Rocky Mountain spotted fever and epidemic typhus; the vaccine against scrub typhus has not yet been proved. Q fever vaccine has been used with apparent success in laboratory workers but has not yet been proved on the general population.

A note was given of the various arthropod repellents which have been used to control the spread of rickettsial diseases.

In treatment of these conditions in man, chloromycetin, aureomycetin and penicillin are all of value.—A. FOGGIE.

BURNET, F. M. (1951). **The interaction of virus and cell surface.**—*Proc. Roy. Soc. Ser. B.* **138**, 47-64. 2847

The greater part of this lecture was devoted to the use of viruses as "probes", by means of which it may be possible to learn details of cellular structure and function. Recent research was discussed in relation to surface phenomena, and a pictorial representation of the interaction of virus and red cell surface was tentatively put forward. It was suggested that on the virus there is a relatively large number of enzymic groups disposed over a surface, the remainder of which is enzymically inactive. Atomic goupings adjacent to the enzymic regions may, however, interfere with the readiness with which the latter can make contact with substrate on the cell surface. On the red cell the presence of a loose mesh of polysaccharide chains, intimately linked with lipoid and protein components of the surface groupings was assumed. At numerous points along these chains are what B. termed substrate groupings, which are numerous and may be the points of attachment between polysaccharide and protein. These "substrate groupings" appear to be removed in some sort of sequence and their removal results, probably secondarily, in the physical changes responsible for the decrease in electrophoretic mobility. On the cell to which an active virus particle is absorbed, there are probably formed unions of varying degrees of firmness between enzyme groups and a number of substrate nodes, in a mucopolysaccharide net. As each node is loosened by enzyme action there is an opportunity for another to be engaged—and hence the picture is conjured of a virus particle "browsing" over the surface of the cell.—ALASTAIR N. WORDEN.

LÉPINE, P., PAVILANIS, V. & ATANASIU, P. (1951). Action de la terramycine sur le virus rabique la maladie de Newcastle et la variole aviaire.—**[Action of terramycin on the viruses of rabies, Newcastle disease and fowl pox.]**—*Ann. Inst. Pasteur.* **80**, 666-668. 2848

Terramycin was not active against these viruses *in vitro*, and *in vivo* there was only some feeble action against rabies virus.

—R. MARSHALL.

BRIODY, B. A. & STANNARD, C. (1951). **The effect of proflavine on the growth of viruses in the chick embryo.**—*J. Immunol.* **67**, 423-430. [Authors' summary copied *verbatim*.] 2849

Proflavine, when injected a few hours before or after the inoculation of virus, inhibits the multiplication of Type B strains of in-

fluenza virus in embryonated eggs, but does not influence the growth of Type A strains. The drug interferes also with the multiplication of vaccinia virus on the chorioallantois of the chick embryo when injected 2 hours following the virus. The growth of mumps and Newcastle disease viruses is unaffected by concentrations of proflavine active against vaccinia virus and Type B strains of influenza virus. In concentrations found to inhibit viral growth, proflavine is not virucidal, and it does not inhibit hemagglutination by any of these viruses.

See also absts. **2732** (bacteriophage used for typing of *Salmonella* organisms); **2996** (report, Ministry of Agriculture and Fisheries); **3001** (report, Canada); **3003** (report, New Zealand); **3004-3005** (reports, Southern Rhodesia); **3008** (report, East Africa); **3009** (report, Cyprus); **3010** (report, India); **3011** (report, Pakistan); **3014** (report, U.S.A.).

IMMUNITY

BIER, O. (1951). Observations préliminaires sur l'hémagglutination, l'hémolyse et la conglutination "passives". [**Observations on haemolysis, haemagglutination and conglutination.**] —*Ann. Inst. Pasteur.* **81,** 650-656. **2850**

Haemagglutination may be converted to conglutination by the addition of horse complement and conglutinin. In the case of the staphylococcal SIII antigen-antibody system this is a more sensitive test.—N. DEAN.

CASTELO, M. (1949). Condiciones de los caballos utilizados en la preparación industrial de sueros terapéuticos. [**The choice and care of horses used for the preparation of sera.**]—*An. Inst. Hig., Montevideo.* **3,** 107-125. **2851**

C. discussed the standards of breed, size, weight, physique, age, health and immunological response required of serum horses at the Montevideo Institute of Hygiene, as well as details of their nutrition, care and hygiene.

—G. P. MARSHALL.

MUSTAKALLIO, E. & RISLAKKI, V. (1952). **Blood groups of cattle. Experiments made on heteroimmune sera.**—*Rep. XIVth Internat. vet. Congr.* **3,** 202-207. [French and German summaries. Part of authors' summary copied *verbatim.*] **2852**

Experiments were undertaken to study blood groups in cattle and their determination by means of absorbed immune sera produced in rabbits. Grouping could not be demonstrated by red corpuscle agglutination tests. On the other hand using absorbed immune sera and the hemolysis test with guinea-pig serum as complement, the blood corpuscles of the tested cows would be divided into groups, of which one had only the common antigen of all the blood corpuscles which we call "a", and the other group also another antigen which we call "b". So all the blood corpuscles of the tested cows were either the type "a" or "ab".

By simultaneous titration experiments with four absorbed factor sera the reactions of the blood corpuscles of cattle to the "b"-factor were determined.

A few facts are given as to heredity showing that the blood factor "b" may be hereditary.

HOSODA, T. & KANEKO, T. (1949). [**On the serological relations among horses, asses and mules.**]—*J. Jap. vet. Sci.* **11,** 117-125. [In Japanese. English summary.] **2853**

Horse red blood cells have type-specific antigens. In the blood cells of the donkey type specific antigens both for donkey and horse blood cells are absent. The blood cells of the mule contain the same antigens as those of the horse.

Common antigens of the horse and other animals are also detected in the blood cells of donkeys and mules. The serological relations in the saliva were the same as those of the sera.—KOGI SAITO.

PIGOURY, L. & CHARNY, J. (1951). Reproduction expérimentale de l'ictère hémolytique du muleton. [**Experimental haemolytic icterus in the mule foal.**]—*Bull. Acad. vét. Fr.* **24,** 399-404. **2854**

The technique employed in the preparation of the mare comprised injection of donkey red blood corpuscles into the pregnant mare. The course of disease in the resultant foal was described in detail.—G. V. LAUGIER.

BEVIS, D. C. A. (1952). **The antenatal prediction of haemolytic disease of the newborn.**—*Lancet.* **262,** 395-398. [Author's summary copied *verbatim.*] **2855**

The results of analysis of the [human] liquor amnii taken at various times in pregnancy indicate that the concentrations of non-haematin iron and urobiiinogen offer a reliable guide to the outcome for the foetus.

Methods of analysis and for obtaining specimens are described, and it is shown that the iron concentration tends to follow a sigmoid curve. The implications of this are briefly discussed.

SQUIRE, J. R. (1952). **Tissue reactions to protein sensitization.**—*Brit. med. J.* Jan. 5th,

1-7. [Author's summary copied *verbatim.*] 2856

Protein sensitization in man is a suitable subject for scientific study, especially when reinforced by animal experiments. Two main types—the asthma-urticaria and the tuberculin-trichophytin type—are considered and contrasted. Some of the methods of controlling sensitization reactions are discussed. Tentative hypotheses suggesting further experimental work are outlined.

Smith, J. M. & Mirick, G. S. (1951). **A micro-test for measuring circulating antibodies against a virus (PVM).**—*J. Immunol.* **67,** 539-546. [Authors' summary copied *verbatim.*] 2857

A test for the detection of virus hemagglutination neutralizing antibodies in the quantity of blood conveniently obtainable from the tail of a mouse is described. The uses of such a test are discussed.

See also absts. **2708-2710** (anthrax); **2720-2723** (TB.); **2740-2743** (brucellosis); **2749** (bovine leptospirosis); **2799** (F. & M. disease); **2805-2806** (rabies); **2821** (distemper); **2823-2826** (Rubarth's disease); **2831** (Newcastle disease and mumps); **2836-2838** (Q fever); **2843** (murine typhus in wild cotton rats); **2844-2845** (scrub typhus); **3001** (report, Canada).

PARASITES IN RELATION TO DISEASE [GENERAL]

Koutz, F. R. (1952). **The effect of built-up litter on the parasite ova and oocysts of poultry.**—*Poult. Sci.* **31,** 123-126. [Abst. from author's summary.] 2858

A résumé of some of Kennard and Chamberlin's published work on built-up litter and its efficiency, along with a paraphrased definition of built-up litter, is given.

Ova of *Ascaridia lineata, Heterakis gallinae,* and *Capillaria retusa* and oocysts of *Eimeria tenella, E. acervulina* and *E. maxima* were present in the litter. These parasitic forms were viable as shown by the presence on P.M. examination of the adult parasites and coccidia in the intestinal tracts of chickens reared on the litter. An experiment by Koutz (1948) had already pointed out that the oocysts of *E. tenella* will survive in new built-up litter and hydrated lime treated built-up litter.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

Scott, M. T. (1952). **Observations on the bionomics of the sheep body louse** (*Damalinia ovis*).—*Aust. J. agric. Res.* **3,** 60-67. 2859

S. recorded observations on the bionomics of *D. ovis* on the sheep and *in vitro.* When *D. ovis* was reared *in vitro* at 36·5°C. and 70–90% relative humidity, on a mixture of skin scurf and bakers' yeast, the life cycle was completed in about 34 days. The incubation period was 9–10 days and the three nymphal instars were completed in about 7, 5 and 9 days respectively. The preoviposition period was three days. These times closely resembled the estimated times of the life cycle observed on the sheep.

Population studies revealed considerable variation in individual susceptibility to louse infestation. Heaviest infestations were found along the mid-dorsal line and down the sides of the sheep, usually on sheep in poor condition. A seasonal fluctuation in populations was also noted. The heaviest infestations occurred in winter and early spring (June-September in Australia); the populations were greatly reduced after shearing and had increased again by the autumn.—B. A. Forsyth.

Brash, A. G. (1951). **Control of blowfly strike in sheep.**—*N.Z. J. Agric.* **83,** 429-431. 2860

A conventional article.—G. B. S. Heath.

Shanahan, G. J. (1951). **Prevention of body strike of sheep. An experiment to determine the period of protection given by DDT and BHC.**—*Agric. Gaz. N.S.W.* **62,** 425-429 & 481-486. 2861

The relative values of D.D.T. and benzene hexachloride and various methods of application were tested over a period of six weeks during the spring of 1950 in a trial using 1870 merino weaners. Little fly activity occurred until the sixth week, when it was intense, 58% of the untreated sheep being struck.

The results may be summarized as follows: Hand jetting and spraying in a power spray dip with either 1% D.D.T. or 0·06% γ-isomer B.H.C. gave good protection from body strike for about six weeks. Jetting was more effective than spraying. Fogging, using a Todd Insecticidal Fog Applicator, with either 10% D.D.T. or 2% γ-isomer B.H.C., or with 5% D.D.T. plus 1% γ-isomer B.H.C. did not give adequate protection for the period of the trial.

S. discussed the difficulties encountered in such field trials. These include incompleteness of groups at the end of the experiment due to deaths, or to incomplete musters resulting from the nature of the country, and the fact that when experimental groups grazed together the

treatment applied to one group may affect the incidence of flystrike in other groups through reduction of the blowfly population.

—M. Scott.

Kerr, W. R. (1951). **Adjuvants for pyrethrins in fly sprays. I. The adjuvant action of some essential oils and other materials from Australian plants. II. Adjuvant activity and chemical structure. III. The mode of action of adjuvants.**—*C.S.I.R.O. Australia Bull.* No. 261. pp. 63. **2862**

Thirty-two materials from Australian plants were tested for their insecticidal activity when combined with pyrethrins. Although they were not toxic, they greatly increased the toxicity of pyrethrins, increased the activity of test flies and retarded the paralysis caused by pyrethrum. Adjuvant activity has been associated in different types of compound with methylenedioxy groups, methoxyl groups and allyl side chains.—R. Marshall.

Fullmer, O. H. & Hoskins, W. M. (1951). **Effects of DDT upon the respiration of susceptible and resistant house flies.**—*J. econ. Ent.* **44**, 858-870. **2863**

Rates of respiration of susceptible and resistant flies treated with D.D.T. and D.D.T. and piperonyl cyclonene were compared with controls. It was concluded that D.D.T. poisoning was caused by an accumulation of absorbed D.D.T. in certain regions where it affected muscular activity. If detoxification kept the concentration in these regions low, then the insects were resistant, but if this was inhibited by piperonyl cyclonene, the insects were made susceptible again.—Beryl A. Kay.

Gersdorff, W. A., Nelson, R. H. & Mitlin, N. (1951). **The relative effect of several pyrethrum synergists in fly sprays containing allethrin.**—*J. econ. Ent.* **44**, 921-927. [Abst. from authors' summary.] **2864**

The comparative effect of piperonyl butoxide, *n*-propyl isome, and synergist 264 in sprays containing either allethrin or pyrethrins in the proportion of 10 times as much adjunct as insecticide was determined in tests against the house fly, *Musca domestica*, by the turntable method.

The joint action of each of the three pyrethrum synergists with allethrin was of the synergistic type. Details and comparisons were given.

The relative effectiveness of the insecticidal materials, with and without a synergist, is in the following ascending order, whether the evaluation is based on the principal toxicant only or on the insecticide equivalent: (1) pyrethrins, (2) pyrethrins plus synergist 264, (3) allethrin, (4) allethrin plus synergist 264, (5) pyrethrins plus *n*-propyl isome, allethrin plus *n*-propyl isome, and allethrin plus piperonyl butoxide, and (6) pyrethrins plus piperonyl butoxide. The last mixture was 17 times as effective as pyrethrins by the first criterion and 13 times by the second.

Allethrin caused slightly slower knockdown than did natural pyrethrins. However, all sprays caused complete or nearly complete knockdown at the low concentration of 0·25 mg. of insecticide per ml. of kerosene.

Rousselot, R. (1951). Ixodes de l'Afrique noire. **[The Ixodid ticks of French West Africa.]**—*Bull. Soc. Path. exot.* **44**, 307-309. **2865**

A list of the names of 38 ticks of mammals and birds, found in French West Africa.

—Jas. G. O'Sullivan.

Travassos Santos Dias, J. A. (1951). Sobre a existência em Moçambique do *Ixodes pilosus* Koch, 1844 (Acarina—Ixodoidea). [*Ixodes pilosus* **in Mozambique.**]—*Rev. med. Vet., Lisboa.* **46**, 230-242. **2866**

An account of the incidence of *I. pilosus* in Mozambique and of its bionomics.

Spence, T. (1951). **Control of sheep scab in Britain.**—*Aust. vet. J.* **27**, 136-146. **2867**

S. gave an account of the measures that had been taken in Britain over the years to control sheep scab, with a summary of the present position and details of the methods now in use.—G. B. S. Heath.

Bell, D. S., Pounden, W. D., Edgington, B. H. & Bentley, O. G. (1952). *Psorergates ovis*—**a cause of itchiness in sheep.**—*J. Amer. vet. med. Ass.* **120**, 117-120. [Authors' summary modified.] **2868**

An itchy condition among adult sheep unassociated with recognized ectoparasitic infection was observed in a flock of Merino sheep.

Deep skin scrapings and skin clippings and shavings revealed minute mites which, from the clinical picture and morphological characteristics of the mites, were *Psorergates ovis* Womersley, 1941, the "itch" mite of sheep in Australia. The existence of this mite has not heretofore been recorded, so far as the authors are aware, in sheep in North America.

Lavoipierre, M. & Griffiths, R. B. (1951). **A preliminary note on a new species of** *Cnemidocoptes* **(Acarina) causing scaly leg in a bud-**

gerigar (*Melopsittacus undulatus*) **in Great Britain.**—*Ann. trop. Med. Parasit.* **45,** 253-254. **2869**

The new species, described from gravid females and immature mites, is smaller than *C. mutans;* there are differences in the epimeres, the dorsal shield and in the arrangement of the setae.—JAS. G. O'SULLIVAN.

See also abstr. **2727** (blood sucking insects transmitting erysipelas to pigeons); **2748** (tick-borne relapsing fever); **2751** (*Melophagus ovinus* extract as a popular remedy in human jaundice); **2776** (trypanosomiasis in the Belgian Congo); **2835** (isolation of *R. burneti* from ticks); **2996** (report, Ministry of Agriculture and Fisheries); **3011** (report, Pakistan); **3012** (report, F.A.O.).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

SODEMAN, W. A. & JUNG, R. C. (1952). **Treatment of teniasis with quinacrine hydrochloride.**—*J. Amer. med. Ass.* **148,** 285-286. [Authors' summary slightly modified.] **2870**

In a series of 11 patients with *Taenia saginata* infestation treated with quinacrine hydrochloride (atebrin), the drug was effective in 10 on initial trial and in the 11th patient when treatment was repeated. The only toxic reactions of importance were nausea and vomiting, which, in general, were easily controlled. Quinacrine appears to be the drug of choice in the treatment of *Taenia saginata* infestation.

FRANK, J. F. (1951). **A study on the incidence of trichinosis in wild rats in the Maritime Provinces.**—*Canad. J. comp. Med.* **15,** 279-283. [Abst. from author's summary.] **2871**

Larvae of *Trichinella spiralis* were present in 4·35% of diaphragms of 460 rats collected from various points in Nova Scotia, New Brunswick and Prince Edward Island. The rats originated from 64 different premises. Eleven of these, six garbage dumps and five abattoirs, were found to contain infected rats. It appears from these findings that, in a survey of this type, the overall percentage of infection found in rats would depend greatly on the origin of the rats and the possibility of their frequenting premises where they might have access to raw pork scraps.

ENIGK, K. (1951). Weitere Untersuchungen zur im Wirtstiere. **[Biology of** *Strongylus vulgaris* Biologie von Strongylus vulgaris (Nematodes) **in the host.]**—*Z. Tropenmed. parasit.* **2,** 523-535. [English summary.] **2872**

Four foals aged 2–4 weeks were experimentally infected with a total of 7805, 1370, 750 and 6602 larvae respectively of *S. vulgaris* in order to study the behaviour of fourth stage larvae. The foals died or were killed after periods of 44, 77, 91 and 111 days respectively. Fourth stage larvae were present in thrombi of vascular aneurysms as early as the 45th day. They had apparently lost almost all ability to migrate and many were found trapped in the aneurysms.

E. observed that 45–60 days after invasion fourth stage larvae appeared in the small subserous arteries of the intestinal wall, blocking them completely and producing nodules. Some might remain as fifth stage larvae in aneurysms while thrombi were still present. The fourth moult occurred at the earliest about 90 days after invasion. Fifth stage larvae which reached the intestine attained sexual maturity within about 6½ months. In the observations made E. did not find that larvae carry pathogenic bacteria from the intestine into the vascular system. Fourteen equine foetuses, 8–11 months old were examined and found free from evidence of pre-natal infection.

Complement-fixing antibodies against an extract of the larvae were strongly present in the blood of foals 13–15 days after experimental infection. Two foals developed a high degree of immunity after repeated doses totalling 7805 and 6602 larvae administered over a period of 42 and 105 days respectively, whereas controls died after a single dose of 800 larvae each.

—E.G.

SWALES, W. E. (1952). **Pasture studies on parasitic diseases of sheep in eastern Canada. I. The use of phenothiazine-salt mixtures during the grazing season.**—*Canad. J. comp. Med.* **16,** 48-56. [Author's summary modified.] **2873**

From observations made over three pasture seasons, using ordinary farm flocks of sheep in controlled experiments, it is concluded that the provision of a phenothiazine-salt lick throughout the season as an adjunct to the pre-pasture individual treatment of adult sheep, increases the chances of *Oesophagostomum columbianum* being eradicated from a flock.

An outbreak of haemonchosis in one control group caused severe reduction in weight gains, but under the conditions of these experiments close correlation of worm burdens and gain in weight of lambs are otherwise not possible.

GIBSON, T. E. (1952). **The development of acquired resistance by sheep to infestation with the nematode** *Trichostrongylus axei.*—*J. Helminth.* **26,** 43-53. [Author's summary copied *verbatim.*] **2874**

An experiment on six pairs of twin lambs

carried out in 1945-6 was repeated in 1946-7, comparable results being obtained in the two years. One of each pair of twins was given 10,000, 15,000 or 20,000 infective larvae of *Trichostrongylus axei* when one month old; and four months later all the lambs were given 40 daily doses of 4,000 infective larvae of *Trichostrongylus axei*. Egg counts and weight gains were recorded weekly and when they were nine months old the surviving lambs were killed and examined post-mortem. The results show that the smaller doses of larvae given to lambs one month old increased their resistance to the second infestation but that the high doses (20,000 or more) decreased the resistance. There was an intermediate dosage level at which no effect, either of increased or decreased resistance, was observed.

The results of this experiment are discussed in relation to the work of other authors on resistance in animals to superinfection with parasites. It is suggested that the resistance to parasitic gastritis developed by sheep in the field may be partly a result of the intake of small numbers of larvae early in life and that it may actually be beneficial to expose young lambs to light infestations. It is, however, dangerous to expose them to a high level of infestation at an early age and because of the difficulty of assessing the dose of larvae necessary to stimulate resistance in a particular lamb, even by artificial infestation, it is impossible to make precise practical recommendations.

Tarazona Vilas, J. M. (1951). Acción del fluoruro de sodio en la bronquitis verminosa del cerdo. **[Sodium fluoride in treatment of lungworm infestation in pigs.]**—*An. Fac. Vet., Madrid.* **3**, 103-108. [English, French and German summaries.] **2875**

Tested on *Metastrongylus apri*, sodium fluoride in 1% and 2% solutions was 93% and 100% effective respectively; exposure to the solution for one min. was sufficient to kill all lungworms. Six pigs with lungworm infestation treated once with 10 ml. of 5% NaF solution were freed from lungworms and no parasitized lungs were detected after three months.

—K. J. Sinclair.

Blaisdell, K. F. (1952). **A study of the cat lungworm** *Aelurostrongylus abstrusus*. — *Thesis, Cornell.* pp. 181. **2876**

The life cycle of this parasite, as first described by the Hobmaiers was confirmed by the successful laboratory infection of 58 cats. A molluscan intermediate host is required. Seven snails and five slugs are enumerated. No species of slug or terrestrial snail tested was found to be unsuitable as an intermediate host. The mouse and the fowl serve as auxiliary hosts of the parasite.

Resistance of cats to the parasite is manifested in several ways. These are dealt with in detail. In general, feeding of large numbers of infective larvae to cats produced heavier infections than feeding smaller numbers. Young cats are more susceptible than older animals.

This is a very careful and detailed study of the problem. B. described the life cycle of the parasite, experimental methods of infection, symptoms, diagnosis, and pathology.

—H. L. Gilman.

Petersen, A. (1950). Om ascariasis. **[Ascariasis in domestic animals.]**—*Maanedsskr. Dyrlaeg.* **61**, 208-222. [Abst. from English summary.] **2877**

A general discussion on *Ascaris* infestation of human beings and of animals, with some comment on conditions in which these worms occur in Greenland.

Work by A. Bertelsen in Greenland is referred to and comment is made on records by O. Fabricius in the 18th century. Attention is drawn to allowances that must be made when reading older literature because of developments in the classification of parasites. Such developments have considerably affected writings on infestation with *Ascaris* worms. Much of the paper consists of discussion of the writings of other workers.—H. Boyd.

Yutuc, L. M. & Oyzon, D. K. (1950). **Comparative resistance of native with two imported breeds of chickens to** *Ascaridia lineata* **(Schneider).**—*Philipp. J. Sci.* **79**, 241-247. [Abst. from authors' summary.] **2878**

On the basis of the experiments carried out, indigenous chickens were found to be more resistant to artificial infestation with *A. lineata* than both White Leghorns and New Hampshire breeds.

Kennedy, P. C., Whitlock, J. H. & Roberts, S. J. (1952). **Neurofilariosis, a paralytic disease of sheep. I. Introduction, symptomatology, and pathology.**—*Cornell Vet.* **42**, 118-124. **2879**

Whitlock, J. H. (1952). **Neurofilariosis, a paralytic disease of sheep. II.** *Neurofilaria cornellensis* **n.g., n.sp. (Nematoda, Filarioidea), a new nematode parasite from the spinal cord of sheep.**—*Ibid.* 125-132. **2880**

I. Cases of posterior paralysis in lambs in New York State and New Hampshire are described. Filarial worms were found in the spinal cord on histological examination. The lesions

and the symptoms resemble those described in Japan and Ceylon in goats, sheep and horses and considered to be caused by the filarial nematode *Setaria digitata* [see INNES, *V.B.* 22, 472].

II. The worms found in sheep described in the previous abst. are described. They are considered to be a new genus and species for which the name *Neurofilaria cornellensis* is suggested.—M.C.

INNES, J. R. M., SHOHO, C. & PILLAI, C. P. (1952). **Epizootic cerebro-spinal nematodiasis or setariasis. Focal encephalomyelomalacia in animals in the Orient caused by immature *Setaria digitata*: a disease which may occur in animals in other parts of the world.**—*Brit. vet. J.* **108**, 71-88. **2881**

The histopathology of the central nervous system of animals with cerebrospinal lesions resulting from infestation with *S. digitata* was described and compared with that of the lesions caused by experimental trauma. The results obtained by Japanese workers, linking the lesions with invasion of the brain and cord by larvae of *S. digitata*, were corroborated. The larvae inflict traumatic malacic damage wherever they encounter nervous tissue. The same cause is probably involved in seasonal paralysis of goats in Ceylon and should be considered in the aetiology of 'wobbles' in horses in the U.S.A.—JAS. G.O'SULLIVAN.

ANON. (1950). **[Statistic survey on caprine and ovine lumbar paralysis in Japan.]**—*J. Jap. vet. med. Ass.* **3**, 371-372. **2882**

A statistical survey by systematic sampling revealed that in 1949, of a total of 32,385 sheep in 60 counties in Japan, 1,729 were affected with lumbar paralysis and 701 died from that cause; of a total of 41,557 goats, 1,975 were found by the same method to have been affected and 665 to have died.

—KOGI SAITO.

SKRIABIN, K. I. & SZICHOBAŁOWA, N. P. (1950). Helmintologia radziecka w świetle miczurinowskiej nauki. **[Soviet helminthology and the Michurin theory.]**—*Med. weteryn.* **6**, 272-274. **2883**

The authors stated that Soviet scientists demonstrated differences in morphology between *Dipylidium caninum* of dogs and those of cats, and that in their opinion the biology of helminths is influenced by environment; that Ryzikow showed that in Syngamidae in the respiratory tract of birds with long necks such as the ostrich there is distinct separation between male and female in contrast to those inhabiting the respiratory tract of fowls where the male and female are permanently joined. The authors criticized American helminthologists for their belief that immunity in old animals depends on the setting up of biochemical conditions in the host which are unfavourable for the parasite. Soviet scientists maintain that the provision of good hygiene and suitable nutrition can not only produce immunity in the young but strengthen and establish it in adults.—JOHN R. MITCHELL.

GORDON, H. McL. (1952). **Anthelmintics and the control of helminth diseases of sheep.**—*Rep. XIVth Internat. vet. Congr.* **2**, 71-80. [French and German summaries.] **2884**

Increased knowledge of bionomics is a better basis for control than anthelmintic medication alone, although the latter is still important. Since the sheep rather than the pasture is the reservoir of infection anthelmintics should be used preventatively. The drug must be highly efficient otherwise the remaining parasites may still be a dangerous reservoir. The habits, habitats and stage of development of the worms were discussed in relation to anthelmintic efficiency. Drugs should be tested against the individual species of parasite in a multiple infection in order to establish precise information about their efficiency.

—JAS. G. O'SULLIVAN.

See also abstr. **2707** (ancylostomid larvae carrying anthrax); **3002** (report, New Zealand); **3006** (report, Nigeria); **3008** (report, East Africa).

NUTRITIONAL AND METABOLIC DISORDERS

QUIN, J. I. (1952). **Physiological aspects of research into animal nutrition in South Africa. [Ruminants.]**—*Rep. XIVth Internat. vet. Congr.* **3**, 170-174. [French and German summaries. Author's summary copied *verbatim*.] **2885**

Investigations have been carried out at Onderstepoort into the digestion of glucose, sucrose, and crude fibre by the ruminant, and into various digestive disturbances such as ruminal atony and bloat. The effects of starvation or poor feeding upon flora and fermentation in the rumen have been studied, and it was found that the addition of up to 9% sugar to a diet of poor quality grass hay improved both appetite and cellulose breakdown, while larger amounts suppressed both.

There was evidence that balanced amounts

of both protein and readily digestible carbohydrate are essential for optimal rates of cellulose digestion, and it was found that the daily intake of poor quality hay could be increased by spraying with a solution of urea and molasses. The nitrate reduction rate affords an additional test for the activity of ruminal digestion. There is evidence that bloat is intimately connected with a disturbance in metabolism occasioned by such factors as wilt, frost, hail, trampling and mowing. Dosing with turpentine and certain coal tar preparations caused immediate breaking of the foam mass and also eructation, but had little effect on gas production, which was inhibited to some extent by formalin and copper sulphate. The effects of sulphanilamide, atropine, potassium cyanide, sodium carbonate, acetic acid and carbamylcholine were observed.

SPERBER, I. & HYDÉN, S. (1952). **Transport of chloride through the ruminal mucosa.** [Correspondence.]—*Nature, Lond.* **169,** 587. **2886**

Using ruminal pouches it was found that chloride and sodium ions passed rapidly through the rumen wall.—JOHN SEAMER.

GREEN, H. H. (1951). **Copper deficiency in ruminants.**—*J. R. agric. Soc.* **112,** 36-44. [Author's summary copied *verbatim.*] **2887**

The problem of disorders in sheep and cattle associated with hypocuprosis, reflected by low values for copper in blood and liver, and preventable by administration of copper salts, is discussed. Since they occur on pastures normal in copper content they are regarded not as due to simple deficiency of copper in the nutritional sense, but as conditioned by factors, the nature of which is still obscure, which interfere with normal copper metabolism in the body itself. The clinical and pathological pictures of the naturally occurring disorders are very different in cattle and sheep.

CUNNINGHAM, I. J. (1952). **Copper deficiency diseases in New Zealand and the relation thereto of dietary molybdenum.**—*Rep. XIVth Internat. vet. Congr.* **3,** 48-54. [French and German summaries. Author's summary copied *verbatim.*] **2888**

The conclusion which can be drawn from the work on copper deficiency areas in New Zealand is that two diseases occur in stock. One disease is a simple copper deficiency which occurs on small areas and which causes enzootic ataxia in lambs, ataxia in calves, and unthriftiness and slow breeding in adult cattle. The second disease is Peat Scours, which affects cattle on most of the remaining peat land and which is most probably due to a moderate deficiency of copper, accompanied by a moderate excess of molybdenum in the fodder. The major symptoms are acute and persistent scouring affecting cattle in the spring months, debilitation of calves and cattle and reduced butterfat production. The evidence for the suggested etiology of Peat Scours is: The symptoms resemble those of molybdenosis. Moderate increases in the dietary molybdenum of copper deficient animals causes scouring and other symptoms similar to those of Peat Scours. Cattle are affected when grazing on pastures moderately deficient in copper and containing a moderate excess of molybdenum. Symptoms do not occur when the pasture is deficient in copper but contains normal low amounts of molybdenum, and are prevented when copper supplies are brought to normal though molybdenum supply is unchanged.

Symptoms of simple copper deficiency and of Peat Scours are completely controlled by supplying copper.

ANON. (1951). **Cobalt and red blood corpuscles.**—*Nutr. Rev.* **9,** 243-245. **2889**

Cobalt and vitamin B_{12} metabolism studies were discussed; in lambs lack of cobalt prevented bacterial synthesis of the vitamin, with typical symptoms.—JOHN SEAMER.

GROENEWALD, J. W. (1952). **Bone disease in equines.**—*Rep. XIVth Internat. vet. Congr.* **3,** 34-37. [French and German summaries. Author's summary copied *verbatim.*] **2890**

The various known factors influencing calcium and phosphorus metabolism are summarised, and the results of three experiments described. In the first of these, clinical cases of osteofibrosis were demonstrated in yearling fillies after twelve months on a given diet. A metabolism trial was conducted. In a second experiment, two 10-month old fillies showed clinical symptoms of rickets after 18 months on a given diet. In the third experiment, the chosen ration induced osteofibrosis in one animal and osteoporosis in another.

LIEGEOIS, F. & DERIVAUX, J. (1951). Hyperphosphorose alimentaire et ostéogénèse chez le porc. Ostéofibrose alimentaire. [**Excess phosphorus in the diet and osteofibrosis in pigs.**]—*Ann. Méd. vét.* **95,** 201-218. **2891**

Of four piglets fed the same basal diet for three months, two given low Ca and high P supplements had decreased growth rates, difficulty in standing, slight hypocalcaemia, hyperphosphataemia becoming normal coincident with hyperphosphaturia, hypertrophy of the

parathyroids, and bone depletion. The authors suggest the mechanism: Alimentary hyperphosphorosis → hyperphosphataemia → hyperparathoidism → osteofibrosis.—W. H. PARR.

DIAKOV, F. (1950). Ztrnulost jehňat. [**"Stiff lamb" disease.**]—*Čas. československ. Vet.* **5,** 609-612. 2892

It is considered that this is not an infectious disease but is caused by lack of vitamin E.—A. MAYR-HARTING.

DINNING, J. S. (1952). **Leucocytosis in vitamin E deficient rabbits.**—*Proc. Soc. exp. Biol., N.Y.* **79,** 231-232. [Author's summary copied *verbatim.*] 2893

The peripheral granulocytes are greatly elevated in vitamin E deficient rabbits.

ANON. (1951). **Choline deficiency in the calf.**—*Nutr. Rev.* **9,** 270-271. 2894

Calves 1–2 days old fed a choline-free synthetic milk diet became moribund in about seven days. Control animals on the same diet plus choline chloride survived and gained weight. Administration of choline chloride to the experimental animals resulted in dramatic improvement.—CHARLOTTE M. WOOD.

SWENSON, M. J. (1951). **Effect of a vitamin B_{12} concentrate and liver meal on the hematology of chicks fed an all-plant protein ration.**—*Amer. J. vet. Res.* **12,** 147-151. 2895

Haemoglobin and packed erythrocyte volume were significantly higher in female chicks fed a diet containing liver meal than in those fed a basal plant protein diet.

—R. MARSHALL.

SCHAEFER, A. E., SALMON, W. D. & STRENGTH, D. R. (1951). **The influence of vitamin B_{12} on the utilization of choline precursors by the chick.**—*J. Nutrit.* **44,** 305-311. 2896

In the presence of vitamin B_{12}, methylaminoethanol plus betaine-HCl or DL-methionine, or dimethylaminoethanol alone, could be used by the chick to replace dietary choline.

—R. MARSHALL.

WENGER, F. (1950). Zur tierärztlichen Behandlung züchterischer Fehler und Mängel bei Jungtieren. (7 Beispiele vordiagnostischer Krankheitsbehandlung). [**Treatment of underdevelopment and abnormal development in young animals.**]—*Schweiz. Arch. Tierheilk.* **92,** 97-105. [English, French and Italian summaries. Abst. from English summary.] 2897

W. discussed the value of exercise therapy, especially on steep slopes, together with administration of mineral and vitamin supplements in the form of fruit residues, for young animals with insufficient or abnormal development of bones, joints or tendons.

MALHERBE, W. D. (1951). **A practical field test for diagnosis of ketosis (acetonaemia) in cattle and sheep.** [Correspondence.]—*J. S. Afr. vet. med. Ass.* **22,** 144-145. 2898

The Dumm and Shipley reagent for ketone bodies, which requires no concentrated ammonia, gives satisfactory quantitative and qualitative results.—P. H. HERBERT.

WEISS, K. E. & CLARK, R. (1951). **Modern theories on the pathogenesis of milk fever and bovine ketosis.**—*J. S. Afr. vet. med. Ass* **22,** 135-141. 2899

A review.—P. H. HERBERT.

ABELL, M. R. & BEVERIDGE, J. M. R. (1951). **Studies on hepatic necrosis induced by dietary means. IV. Conditions affecting the production and prevention of massive liver necrosis.**—*Arch. Path.* **52,** 428-440. 2900

The following substances were effective in preventing hepatic necrosis: cystine, α-tocopherol, α-tocopherol quinone, synthetic vitamin K, ascorbic acid (slight activity), propyl thiouracil, sulphaguanidine and aureomycin. Substances which augmented necrosis were: cod-liver oil and desiccated thyroid.

—R. MARSHALL.

PAYNE, T. P. B. & DUFF, G. L. (1951). **Effect of tween 80(R) on the serum lipids and the tissues of cholesterol-fed rabbits.**—*Arch. Path.* **51,** 379-386. 2901

The intravenous injection of the commercial detergent tween 80(R) (polysorbate 80 U.S.P.) into cholesterol-fed rabbits causes a rise in serum phospholipoids and inhibits atherosclerosis. It is suggested that in the genesis of atherosclerosis the relation of serum cholesterol to the other serum lipoids and to serum protein is even more important than the absolute level of serum cholesterol.

—J. A. NICHOLSON.

See also abst. 3019 (book, metabolic interrelations).

DISEASES, GENERAL

WIRSTAD, H. F. (1951). Luftposetympanitt hos föll. [**Tympanites of the guttural pouch in foals.**]—*Nord. Vet.-Med.* **3,** 87-101. [English and German summaries.] 2902

W. described the anatomy and commonest pathological conditions in the guttural pouch of foals. Guttural pouch tympanites occurs most often in foals from birth up to one year. Respiratory embarrassment and a slight painless swelling in the parotid region may be noted early. There may be difficulties in connexion with suckling. The real symptoms appear 1–3 months later. The foal stands with head extended, and avoids sudden head movements. The swelling may increase with expiration. Inflammatory changes may develop, but the general condition is rarely affected. The cause is rarely infection primarily, but results from severe coughing. The course is chronic, with no tendency for spontaneous recovery. The treatment is surgical, the mucous fold which acts as a valve to prevent the escape of air being removed.—H. Boyd.

Floch, J. (1951). Sur quelques tics et stereotypies du cheval. **[Nervous tics in horses ("weaving", "windsucking" etc.)]**—*Thesis, Alfort.* pp. 52. **2903**

A general discussion of "weaving", "windsucking", and of a peculiar vice which occurs in foals in the months after weaning and is common in France. The symptoms of the latter vice which occur during feeding are sudden cessation of chewing, followed by nasal and labial twitching, and sucking noises. Spasms last about 10 sec., recurring about eight times in 5 min. Prognosis, cause, pathogenesis and treatment were described.—A. S. King.

Shoshan, A. (1951). **[First acquaintance with three day sickness.]**—*Refuah Vet.* **8,** 111-113. [Abst. from English summary p.127.] **2904**

An account of three-day sickness of cattle in Israel.

Lombard, C. (1952). Albinisme musculaire chez le boeuf. **[White skeletal muscles ("Albino muscle") in cattle.]**—*Bull. Acad. vét. Fr.* **25,** 21-22. **2905**

In this rare condition all the muscles, except the cardiac, diaphragmatic and coccygeal, appear much paler than normal. The histological appearance is normal. Only two cases have been recorded in France.—Roy Mack.

Winter, K. B. & Honess, R. F. (1952). **Bearded grains cause death of deer.**—*J. Wildl. Mng.* **16,** 113-114. **2906**

About 30 mule deer in the U.S.A. were found dead or dying after feeding on wheat hay containing a bearded variety of wheat. Large numbers of awns were embedded in the soft structures of the mouth and some had penetrated the peritoneum and pleura. Intense abomasitis and enteritis were constant features. —J. T. Done.

Stamp, J. T. (1950). **Abortion of sheep.**—*Vet. Rec.* **62.** 779. Discussion pp. 780-785. **2907**

An enzootic abortion in sheep which was first recognized in Scotland in 1936 is now known to be caused by an organism of the psittacosis-lymphogranuloma group. The method by which the disease is spread is not kown, but ticks are not implicated.

Tick-borne fever is an important cause of abortion among ewes which are not acclimatized to tick infested farms, but a single injection of virulent tick-borne fever blood is sufficient to confer up to 12 months' immunity on sheep not previously exposed to the disease. —G. B. S. Heath.

Hruška, K. (1950). Akutní mor vepřů nebo morbus maculosus u vepřů? **[Purpura in swine, with lesions resembling those of swine fever.]**—*Čas. československ. Vet.* **5,** 547-549. [French summary.] **2908**

A form of purpura of unknown aetiology in pigs was discussed. The condition was thought to have been brought about by faulty nutrition. Some of the haemorrhagic lesions closely resembled those of swine fever. Differential diagnosis was discussed.—E.G.

Hoerlein, B. F. (1952). **Intervertebral disc protrusions in the dog. A clinical and pathological study.**—*Thesis, Cornell.* pp. 143. **2909**

The incidence of clinical vertebral disc protrusions in dogs is about 0·7%. The incidence of abnormal discs in clinically normal dogs as determined in 130 dogs at autopsy was 41·5%. Eighty seven percent of these dogs with abnormal discs were over five years of age. The commonest age of clinical protrusion cases was three years.

The clinical manifestations of disc protrusions are pain, paresis, incoordination, paraplegia, and an acute progressive fatal paralysis.

Diagnosis is made by the results of normal contrast radiograms of the vertebral column as correlated with the findings of a neurological examination.

The methods of treatment are grouped into conservative and surgical categories. Surgery includes dorsal laminectomy, hemilaminectomy, and disc fenestration or curettage. The illustrations are excellent.—H. L. Gilman.

Greer, W. E. R. & Keefer, C. S. (1951). **Cat-scratch fever. A disease entity.**—*New Engl. J. Med.* **244,** 545-548. **2910**

A report of a human case of lymphadenitis

diagnosed as "cat scratch fever" with an associated systemic disturbance and dermatitis.

The major part of the article comprises a review of diseases transmissible to man by the agency of cats.—J. T. Done.

Anon. (1951). **Cats and the transmission of disease to man.**—*Med. J. Aust.* Oct. 13th, 508-509. 2911

An annotation based on the reports of "cat-scratch fever" (or "cat-bite fever").

—J T. Done.

Garai, O. F. (1952). **Cat-scratch fever. A case in England.**—*Lancet.* 262, 646. 2912

This is said to be probably the first recorded case of "cat-scratch" fever in England. The patient was bitten on the dorsum of the left hand. An antiseptic was applied to the injury and it healed normally in about ten days. The kitten had been ill when it bit the patient and died a few hours after inflicting the bite. The cause of death was not known. Several days later, the interval not being given in detail, the patient developed a headache with muscular aching and rigors followed by a persistent aching pain at the back of the chest. An erythema appeared over the trunk for a few hours. A day or two after the onset of the illness, the temperature rose to 100°F., later reaching 102°F. The left epitrochlear lymphatic gland swelled to the size of a walnut with some reddening of the overlying skin and the left axillary lymphatic gland became slightly enlarged. Three weeks after the onset of illness, the epitrochlear gland was enlarged and the patient still unwell, not having responded to chloramphenicol. Later there was no response to penicillin. About a month after the infliction of a bite, a tiny bead of pus appeared at the original wound; attempts to culture micro-organisms failed. The epitrochlear gland had swollen at about the sixth week and 1 ml. of fluid was aspirated from it. No micro-organisms could be grown in culture and no infective agent could be demonstrated from a mouse and a g. pig that were inoculated with this material. G. records that the results of skin tests on the patient with antigen "prepared from a typical case of "cat-scratch fever" supplied by Daniels and Macmurray in the U.S.A., produced a skin reaction. G. suggests that the causal agent may have been a virus.

Debré, R., Lamy, M. & Jammet, M. L. (1950). La maladie des griffes du chat. **[Lymphadenitis in children caused by scratches by cats.]**—*Bull. Mém. Soc. Méd. Hôp., Paris.* 66, 76. 2913

The case is reported of a boy aged 6½ years, who suddenly developed a suppurative lymphadenitis in the right groin, without any visible cutaneous lesion and without fever. There were three cats in the home, with which the boy played continually. A positive intradermal reaction within 48 hours was obtained with Lee Foshay antigen. Aureomycin arrested the progress of suppuration.—W. R. Bett.

Polson, A. (1951). **Effect of diseases on the serum albumin of animals.** [Correspondence.]—*Nature, Lond.* 168, 421-422. 2914

Observations with the Lamm scale method revealed that the serum albumin content of horses, cattle, sheep and dogs falls in the acute phase of tropical diseases such as trypanosomiasis, *Theileria parva* infection, piroplasmosis of dogs, African horse sickness, bluetongue, heartwater, rickettsia infection of dogs and lumpy skin disease.—John Seamer.

van Creveld, S. & Paulssen, M. M. P. (1951). **Significance of clotting factors in blood-platelets, in normal and pathological conditions.**—*Lancet.* 261, 242-244. 2915

Human blood platelets contain a "third factor" which can neutralize heparin and which may be absent in some cases of haemorrhagic disease.—John Seamer.

I. Goto, M. (1951). **[Studies on the waxy degeneration of muscles in domestic animals. III. On the changes of myocardium and skeletal muscles in 5 cases of foals and other animals.]**—*Jap. J. vet. Sci.* 13, 1-12. [In Japanese. English summary.] 2916

II. Goto, M. & Fujimoto, Y. (1951.) **[Studies on the waxy degeneration of muscles in domestic animals. IV. On the change in myocardium and skeletal muscles of dead lambs obtained in 1949.]**—*Ibid.* 13-23. [In Japanese. English summary. For part II, see *V.B.* 22, 1271.] 2917

I. Waxy degeneration of striated muscles was studied in five foals, a horse-embryo, a young fox and a young dog. Disintegrated sarcoplasm in muscle fibres was found in many areas, some ruptured fibres contained hyaline granules, and the interstitial cells, chiefly histiocytes, were proliferated and swollen.

Two of the foals had "bacillary disease", one foal had equine infectious anaemia, the fox had encephalitis and the dog had distemper. Bacteriological examination of the remaining foals yielded negative results.

II. Muscular degeneration was observed in eight out of 17 dead lambs examined. Clinical

symptoms had been observed only in one case; four had died of pneumonia, one of constipation, one of malnutrition, and one from an unknown cause.

Macroscopic examination revealed lesions in the form of greyish spots or streaks in four cases. Histological examination revealed waxy degeneration and calcification of both the cardiac and the skeletal musculature in eight cases. Calcification was clearly demonstrated macroscopically, as greyish spots or streaks. In the myocardium, calcification was not accompanied by waxy degeneration, but cellular foci caused by proliferation and migration of interstitial cells were observed. In the skeletal muscles waxy degeneration had however preceded the proliferation and calcification of interstitial cells in the course of degeneration.

—Kogi Saito.

Vogel, F. S. (1951). **Demyelinization induced in living rabbits by means of a lipolytic enzyme preparation.**—*J. exp. Med.* 93, 297-304. 2918

Intracerebral and intravascular injections of lipase produced clinical and histological signs of demyelinisation in rabbits.—John Seamer.

Selye, H. (1951). **The production of malignant nephrosclerosis by simultaneous treatment with cortisone and an anterior pituitary preparation.**—*Acta endocrinol.* 7, 288-305. [In English. Abst. from summary.] 2919

Experiments on suitably sensitized (unilateral nephrectomy, 1% NaCl instead of drinking water) rats were made to examine the effect of simultaneous treatment with cortisone and a lyophilized anterior pituitary (LAP) preparation. The nephrosclerosis, and increase in cardiac weight, blood-pressure and diuresis, resulting from threshold doses of LAP were considerably aggravated by simultaneous treatment with cortisone. Cortisone alone failed to produce any of these changes, even when highly toxic amounts were given.

The above mentioned toxic actions of LAP resemble those produced by DCA (deoxycortone acetate) overdosage in rats, known to be aggravated by cortisone. There is a fundamental similarity in the actions of LAP and DCA, and also of A.C.T.H. and cortisone.

See also absts. **3015-3016** (books, pathology); **3018** (book, cold injury).

POISONS AND POISONING

Hughes, W. (1950). **Deficiency patterns in metallic poisoning.**—*Brit. med. J.* March 18th, 634-639. 2920

An analysis of clinical findings was made in a series of human cases of gold, arsenic, mercury and thallium poisoning, with an appraisal of the similarity of lesion patterns present, to those characteristic of vitamin deficiencies. It was noted that, on the basis of Peter's hypothesis of a "biochemical lesion" in metallic poisoning, identity of lesion pattern in the two syndromes is probable and it was suggested that this hypothesis could be extended to include the possibility of biochemical lesions produced by heavy metals in systems other than the pyruvate-oxidase system. Attention was drawn to the desirability of keeping in mind the possibility of metallic poisoning in cases showing epithelial lesions similar to those found in riboflavin deficiency, especially when not associated with obvious malnutrition.

—H. Paver.

Bull, L. B. (1952). **Chronic copper poisoning in grazing sheep in Australia.**—*Rep. XIVth Internat. vet. Congr.* 3, 39-42. [French and German summaries. Author's summary copied *verbatim*.] 2921

Chronic copper poisoning occurs in sheep which have stored an abnormal amount of copper in the liver. It is characterised by a sudden rise in blood copper which is followed in about twenty-four hours by haemoglobinaemia, haemoglobinuria and jaundice. Grazing sheep may die from chronic copper poisoning when they consume pasture plants containing abnormal amounts of copper taken up from cupriferous soils. The contamination of surface soil and pasture plant by copper-containing dust from waste dumps around copper mines may also lead to the development of the disease. Grazing sheep may also develop the disease on certain acid soils with normal copper content. The abnormal copper status of the sheep develops in exceptional seasons favouring early autumn growth of non-gramineous annual plants. For example, the disease has been observed in sheep grazing on pastures dominated by *Trifolium subterraneum*. It is suggested that a high copper/molybdenum ratio favours assimilation of copper under these conditions.

The disease also occurs in a proportion of sheep which have developed heliotrope poisoning from grazing *Heliotropium europaeum*, a summer annual.

Under any of these conditions, the disease

is precipitated by a falling plane of nutrition, by fasting and by physical exertion.

WEATHERALL, M. & COMFORT, A. (1952). **Urinary porphyrins in experimental lead poisoning.** [Correspondence.]—*Nature, Lond.* **169**, 587-588. 2922

Experimental chronic lead poisoning in rabbits caused excretion of large amounts of coproporphyrin (up to 79 μg. per kg. per day) with much smaller amounts of 3- and 5-carboxyl porphyrins, the porphyrin distribution being the same as in normal animals. A non-fluorescent precursor was the primary excretion product. Neither folic acid, pyridoxine, nor cyanocobalamin (vitamin B_{12}) affected the porphyrin excretion of lead poisoned rabbits.

—R. MARSHALL.

ROUSSAK, N. J. (1952). **Fatal hypokalaemic alkalosis with tetany during liquorice and P.A.S. therapy.**—*Brit. med. J.* Feb. 16th, 360-361. [Author's summary copied *verbatim.*] 2923

A patient receiving sodium *para*-aminosalicylate for tuberculous meningitis developed a metabolic alkalosis, from which she died. Liquorice, used as a flavouring agent with the P.A.S., appears to have been responsible.

TWIEHAUS, M. J. & LEASURE, E. E. (1951). **The presence of a hemorrhagenic factor in soybean pellets extracted with trichloroethylene as a solvent when fed to cattle.**—*Vet. Med.* **46**, 428-431. 2924

An account of poisoning in cattle by soya bean extracted with trichloroethylene. The illness was characterized by extensive haemorrhage, and it was reproduced experimentally.

—JOHN SEAMER.

SCHRÖTER, A. & DANNEEL, M. (1951). DDT-Vergiftung bei Hühnern. [**D.D.T. poisoning in fowls.**]—*Berl. Münch. tierärztl. Wschr.* No. 6. pp. 114-116. 2925

A nervous disorder with lameness and muscular spasm was caused in fowls by ingestion and cutaneous absorption of D.D.T. which had been used as an insecticide in the fowl house.

—R. MARSHALL.

THOMAS, R. M. & PRIER, J. E. (1952). **An experimental case of urinary calculus in a Holstein-Friesian steer.**—*J. Amer. vet. med. Ass.* **120**, 85-86. 2926

A 75-day-old steer was given a daily oral dose of 30 g. of oxalic acid for 45 days, a similar untreated animal being maintained under the same conditions. At about the 40th day the treated animal had painful frequent micturition and abdominal distension and at autopsy on the 50th day there was thickening of the bladder wall and inflammation and blockage of the urethra. No well formed calculus was present.—E. J. H. FORD.

DAVID, A. (1951). **Preventive medicine in weed and pest control.**—*Trans. Ass. indust. med. Offr.* **1**, 14-25. 2927

D. described the signs and symptoms and the treatment of poisoning by dinitro-orthocresol (D.N.O.C.) and by organic phosphorus insecticides, their action on the body, and the precautions necessary for the protection of spray operators: these include education, training, supervision in the field, the use of protective clothing, and of gas-proof air-conditioned "cabs", the use of prophylactic antidotes, regular medical supervision and regular blood cholinesterase estimations, the latter being stated to be the only satisfactory method of determining early organic phosphorus absorption.

In the U.S.A., a sealed container containing atropine sulphate tablets is issued to each spray technician using organic phosphorus insecticides, for use should symptoms of poisoning occur.—F.E.W.

CHAPRON, H. (1951). Troubles causés par la sabline chez le cheval. [**Hypersalivation in horses caused by** *Arenaria serpyllifolia.*]—*Rec. Méd. vét.* **127**, 143-146. 2928

The ingestion of *A. serpyllifolia* (thyme-leaved sandwort) produced hypersalivation in horses; there were no abnormalities in mucus, pulse, or digestion, but respiration was slightly accelerated; there was abnormal thirst and there was irritation of the urinary tract. The plant had formed up to 20% of the forage fed to the horses.—F. R. HARRIS.

GUILHON, J. & OGER, C. (1951). Intoxication expérimentale par la glycérie aquatique. [**Poisoning by** *Poa aquatica.*]—*Bull. Acad. vét. Fr.* **24**, 383-386. 2929

Three experiments are described in which the death of sheep in 85, 33, and 20 min. followed feeds of *Poa aquatica* in amounts of 150 g., 400 g. and 200 g. respectively. The symptoms were those of hydrocyanic acid poisoning. The authors considered that the plant must be considered as dangerous for animal feeding.—CHARLOTTE M. WOOD.

See also absts. 3002-3003 (reports, New Zealand).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

DOUGLAS, W. W. & PATON, W. D. M. (1952). **The hypothermic and antipyretic effect of preparations of A.C.T.H.**—*Lancet.* **262,** 342-345. [Authors' summary copied *verbatim.*] **2930**

Preparations of A.C.T.H. [adrenocorticotrophic hormone] cause a fall in the rectal temperature of normal (unanaesthetised) rabbits. The fall in temperature is about 1°C (range 0·24–1·97°C) with a dose of 1 unit per kg. of body-weight, reaches its lowest point in 1–2 hours, and passes off in about 3 hours. A.C.T.H. preparations, given simultaneously with a pyrogen will delay and reduce the pyrexial response to the pyrogen. Given after pyrexia has been established, A.C.T.H. preparations will temporarily lower the temperature to normal or below. The hypothermic and antipyretic actions of A.C.T.H. preparations were displayed by all samples tested, and were not due to contamination with posterior-pituitary hormone. The significance of these actions in routine pyrogen testing of A.C.T.H. preparations and in relation to physiological processes involved in temperature regulation is discussed.

MCINTOSH, H. W. & HOLMES, C. B. (1951). **Some evidence suggesting the suppression of adrenocortical function by cortisone.**—*Lancet.* **261,** 1061-1064. **2931**

Both urinary excretion of 17-ketosteroids and response to a single small injection of A.C.T.H. [adrenocorticotrophic hormone] were decreased during cortisone therapy.

—R. MARSHALL.

BOYER, F. & CHEDID, L. (1951). Action antitoxique de la cortisone. **[Anti-toxic action of cortisone.]**—*C. R. Acad. Sci., Paris.* **233,** 1232-1234. **2932**

The authors found that cortisone has a marked action in the body of the host on the endotoxin of *Salmonella typhi.*

—F. R. HARRIS.

See also absts. **2729** (action of streptomycin on *Past. pseudotuberculosis* infection in g. pigs); **2739** (action of sulphadiazine and certain antibiotics on *Brucella*); **2751** (popular remedy against human jaundice); **2760** (effect of penicillin on *Cl. tetani*); **2768** (fungicide); **2778-2783** (trypanosomiasis); **2789** (trichomoniasis); **2791-2792** (antimalarial drugs); **2841** (Q fever); **2848** (terramycin in rabies, Newcastle disease and fowl pox); **2861-2864, 2925-2982** (insecticides); **2870** *(Taenia saginata);* **2875** (lungworm infestation in swine); **2942** (adrenalin); **2946-2947** (A.C.T.H.); **3020** (book, chloroform); **3021** (book, fluorine and fluoro compounds).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

THOMSON, M. L. (1951). **Dyshidrosis produced by general and regional ultra-violet radiation in man.**—*J. Physiol.* **112,** 22-30. [Author's summary copied *verbatim.*] **2933**

In a hot wet environment general ultraviolet radiation in moderate erythemal doses produced, in seven persons acclimatized to heat but not to radiation, up to 60% diminution in sweating rate on the second or third day after exposure. In two subjects similarly irradiated and exposed to a hot dry environment and high air movement there was no change in overall sweating rate as the result of radiation. With the quantities of radiation administered and at the temperatures of the trials there were no significant changes in the subjects' pulse rates or rectal temperatures. After recovering from the dyshidosis caused by one exposure to radiation, a second exposure produced a further fall in sweating rate in the same persons. A technique is described for assessing the effect of drugs and other treatments on the sweating rate of small areas of skin. The reduction of sweating rate which occurs after general ultraviolet radiation has been confirmed using methods for the estimation of sweating rates over small areas of irradiated skin. The wavelengths causing the reduction in sweating rate are probably present in natural sunlight.

DUMM, M. E., RALLI, E. P. & GRAEF, I. (1952). **Effect of hypophysectomy on pigmentation and ascorbic acid excretion in black rats.**—*Proc. Soc. exp. Biol., N.Y.* **79,** 214-216. [Authors' summary slightly modified.] **2934**

Pigmentation was observed in black rats following hypophysectomy, similar to the pigmentation occurring in black rats following adrenalectomy. The adrenal glands of the hypophysectomized rats were smaller than normal, with atrophic cortices. Excretion of ascorbic acid decreased to low levels following hypophysectomy. The increase in pigmentation is believed to be related to the derangement of the steroid hormones of the adrenal cortex of the hypophysectomized rat.

ACHAYA, K. T. & HILDITCH, T. P. (1950). **A study of the component glycerides of cow and buffalo milk fats with reference to the possible mechanism of their production during lacta-**

tion.—*Proc. roy. Soc. Ser. B.* **137,** 187-211. 2935

The component glycerides of milk fat in a cow and a buffalo were studied quantitatively. The authors discussed the theory that short-chain acyl glycerides of milk result from oxidation and reduction processes on the unsaturated (chiefly oleic) groups in blood glycerides passing through the lactating gland. The glycerides of milk fat and body fat were contrasted.

—John Seamer.

Behrens, H. & Hupka, E. (1951). Die Blut-Liquor-Schranke beim Pferd. IV. [**The blood brain barrier in the horse. IV.**]—*Dtsch. tierärztl. Wschr.* **58,** 205-206. [For previous parts, see *V.B.* **21,** 3026, 3027 & 3345.] 2936

The sugar level of the blood and also of cerebrospinal fluid obtained by occipital puncture from healthy horses were found to bear a close relationship, the cerebrospinal sugar level being 52–82%, average 71·6%, of the blood sugar level.—J. A. Nicholson.

Hansen, M. F., Todd, A. C., Kelley, G. W. & Cawein, M. (1950). **Six blood values in Thoroughbred stallions, mares in foal, barren mares, and weanlings.**—*Bull. Ky agric. Exp. Sta.* No. 555. pp. 19. 2937

Blood counts, packed cell volume, mean corpuscular volume and haemoglobin content were recorded on 70 blood samples from stallions, mares in foal, barren mares and weanlings.—John Seamer.

Bénard, H., Gajdos, A. & Tissier, M. (1949). Hémoglobine et pigments apparentés. Myoglobines, catalases, peroxydases, cytochromes, porphyrines, pigments biliaires. [**Haemoglobin and blood pigments.**] pp. 350. Paris: Masson et Cie. Fr. 1350. 2938

This book on the biochemical, physiological and pathological aspects of haemoglobin, myoglobin, catalase, peroxydase, cytochrome, porphyrins and bile pigments contains a wealth of technical detail and should be useful to veterinary students, practitioners and research workers. There are 943 bibliographical references at the ends of chapters and some 60 diagrams and author and subject indexes.

—E.G.

Jakobsen, P. E. & Moustgaard, J. (1950). **Investigations of the serum proteins in pigs from birth to maturity.**—*Nord. Vet.-Med.* **2,** 812-824. [In English. German summary.] 2939

Serum protein, 60% of which is globulin, in the mature pig is equivalent to 1,000 mg. % nitrogen. At birth the values are 600 mg. % N and 80% globulin.—John Seamer.

Barone, R. & Colin, A. (1951). Les artères du coeur chez les ruminants domestiques. [**The arteries of the heart in ruminants.**]—*Rev. Méd. vét., Lyon et Toulouse.* **102,** 172-181. 2940

A detailed anatomical description of the coronary arteries of the ruminant heart. The left artery has the larger volume and supplies not only the left auricle and ventricle but also the cardiac septum. It is also distributed to a small area of the anterior wall of the right auricle and ventricle. The anastomosis between the two arteries is well defined.

—J. A. Nicholson.

Doeglas, A. (1952). Een methode tot klinische bloeddrukbepaling bij honden. [**A method for measuring the blood pressure in dogs.**]—*Tijdschr. Diergeneesk.* **77,** 123-136. 2941

Blood pressure was measured with a Collens sphygmo-oscillometer. In normal dogs the systolic pressure was 140–150 mm. and the diastolic pressure 80–100 mm. The observation proved the method to be more accurate than the intra-arterial method.

—C. A. van Dorssen.

Chakrabarty, M. L. (1949). **Double action of adrenalin on the small intestine.**—*Amer. J. Physiol.* **159,** 457-460. [Author's summary copied *verbatim.*] 2942

Adrenalin exerts a double action on the gut: stimulation takes place even by an inhibitory dose when preceded by eserine or acetylcholine. This stimulation is abolished by atropine. The stimulation always took place in the fresh gut and never when cooled or nicotinized. The presence of parasympathetic tone seems to be a necessary condition. The gut showed recovery and sometimes overaction after an inhibitory dose of adrenalin, although the gut remained in contact with adrenalin in the bath. Stimulation, recovery and overaction appear to be caused by the liberation by adrenalin of acetylcholine from the nerve elements present in an isolated piece of gut.

Jackson, C. & de Boom, H. P. A. (1951). **A contribution to the cytology of the spleen: the Romanowsky-stained bovine spleen smear.**—*Onderstepoort J. vet. Res.* **25,** No. 2. pp. 79-142. [Abst. from authors' summary.] 2943

The purpose of this work was to provide a systematic description of the elements and an explanation of the chief artefacts of the bovine spleen smear, together with an atlas-guide. Attention was drawn especially to the following points: (1) The most active phagocytosing cell of the bovine spleen is a lymphocyte, termed

by the authors a phagocytosing lymphocyte, and doubtless corresponding to the macrophage, clasmatocyte (smaller type), "splenocyte" and even perhaps the "monocyte" of some authors. (2) Phagocytosis in the spleen includes erythrocytes, leucocytes, and blood platelets. Thrombophagocytosis is a very extensive phenomenon in the spleen of bovines, only to be appreciated by the use of refined technique. (3) Monocytes are of infrequent occurrence. They are derived from reticulum cells, through an intermediate stage which may be spoken of as a monoblast; but not from lymphocytes. (4) Although ultimately in aged plasma cells distinction between the two types is impossible, plasma cells may be derived from reticulum cells and monocytes, as well as from lymphocytes. (5) The sinus-lining cells have a distinct morphology, especially in their nuclear characters and their content of iron-containing pigment "haemofuscin" at both poles of the nucleus. No evidence of phagocytic or cytogenic abilities could be demonstrated. (6) The Schweigger-Seidel sheath cells were described in smears and details of their morphology were given. The view was advanced that they are of the same nature as reticulum cells as far as reticulin production, mobilisation and phagocytosis are concerned, although differing morphologically from them in the resting state. (7) The nature of certain puzzling epithelial-like elements in routine spleen smears was cleared up by the finding that they are mesothelial cells of the splenic serosa.

The following substances were also briefly described as they appeared in the Giemsa-stained spleen smear:—endothelial cells, smooth muscle cells, mast cells, eosinophiles (their youthful appearance and the presence of Liebreich's α^1 granules were commented upon), neutrophiles (mention was made of their macrophagocytic activity), megakargocytes, erythrocytes, as well as blood platelets, reticulin, collagen and elastic fibres, haemosiderin and "haemofuscin".

The status and genesis of artefacts were discussed. Theoretically a distinction can be drawn between artefacts produced by making and subsequent manipulation of preparations (exogenously produced artefacts), artefacts conditioned by states of senescence or degeneration of the cells (endogenously conditioned artefacts), and artefact-like appearances resulting from physiological processes; in practice this distinction is not always possible. The artefacts described include cellular distortion, cytoplasmic fragments and free cytoplasmic constituents, naked nuclei, distorted and smudged nuclei, various contaminants, stain deposit, etc. The effects of autolysis were also mentioned.

Problems of cell derivation and terminology were discussed.

In view of the phagocytic powers of lymphocytes and neutrophiles and the inactivity of the sinus endothelium in this respect a critique was offered on the reticulo-endothelial system, and the proposal was put forward that the name be changed to "Phagocytic System".

BARONE, R. & SCHELLENBERG, P. (1951). Les territoires de la sensibilité cutanée du membre thoracique, chez les équidés. [**The cutaneous nerves of the forelegs of horses.**]—*Rev. Méd. vét., Lyon et Toulouse.* **102,** 672-691. **2944**

A comprehensive review of the cutaneous sensibility of the fore limbs of the horse. Following anatomical considerations of the accepted distribution of the components of regional nerves, a series of experiments were executed ranging from section of one to many nerves. These were supplemented by excitation tests and infiltration of nerve bundles with local anaesthetic. The results were mapped out in line drawings —C. W. OTTAWAY.

NICANDER, L. (1952). **Histological and histochemical studies on the adrenal cortex of domestic and laboratory animals.**—*Acta Anat.* Suppl. No. 16. pp. 88. [Stated to be the author's Thesis, Stockholm University.] **2945**

Adrenal glands were examined from horses, cattle, sheep, pigs, dogs, cats, rabbits, g. pigs, Syrian hamsters, albino rats and albino mice, of different ages—some were foetuses—and both sexes; no adrenal glands from stallions were, however, available. The main purpose was a comparative study of the subdivision of the adrenal cortex into different zones and their relation to cortical function. Histochemical methods were used for lipoids—especially cholesterol, the probable precursor of the cortical hormones—and alkaline and acid phosphatase. The technical methods used are listed and the results of the work described in considerable detail. The paper is illustrated with 38 photomicrographs which, as reproduced, are of barely adequate quality.

—L. M. MARKSON.

CARSTENSEN, H. & LINDERHOLM, H. (1952). **The effect of adrenocorticotrophic hormone on dermal spread.**—*Acta endocrinol.* **9,** 6-28. [In English. Authors' summary modified.] **2946**

The effect of different A.C.T.H. prepara-

tions on the dermal spread was studied. The preparations were assayed for adrenocorticotrophic and vasopressor activities.

After 24 hours' treatment with A.C.T.H., an inhibition of the dermal spread was found in living intact as well as in adrenalectomized animals. No inhibition was found when the test was made in recently killed animals. The results indicate that this effect of A.C.T.H. is (at least partially) independent of the adrenal glands and may be connected with some effect on the peripheral circulation. A.C.T.H. is assumed to be the active factor because interfering effects of vasopressin can be excluded.

After treatment with A.C.T.H. for 6–7 days there was an inhibition of the spread in recently killed intact and adrenalectomized rats. In these groups vasopressin could not be excluded as an active factor, although some evidence supports the view that A.C.T.H. caused the inhibition of the spread. This inhibition may be connected with an effect of A.C.T.H. on the ground substance of the connective tissue.

In intact and adrenalectomized rats infected with an agent producing pneumonia, probably of viral origin or with hepatic parasites there was a reduced spread not appreciably affected by A.C.T.H. administration.

A connection was observed between the reduction of the dermal spread and of the adrenal ascorbic acid content in animals with an intestinal infection.

ASBOE-HANSEN, G. (1952). **Influence of ACTH and cortisone on dermal spread. Suppressed action of hyaluronidase due to connective-tissue changes.**—*Acta endocrinol.* **9,** 29-36. [In English. Abst. from author's summary.] 2947

A.C.T.H. and cortisone reduce the spreading of hyaluronidase in rabbit skin, not by direct inhibition of the enzyme but probably because the hyaluronate of the connective-tissue ground substance decreases during the administration of the hormones, giving less hyaluronidase.

The author compared this finding with the marked difference between the spread in myxoedematous skin, which contains abundant hyaluronate and in normal skin, which contains smaller amounts.

The spread of indicator dyes, as measured by the area in skin not subjected to the action of hyaluronidase, was found to be increased in all the animals treated with cortisone and in most of those treated with A.C.T.H.

ENGFELDT, B. & HJERTQUIST, S.-O. (1952). **The relation between the functions of the thyroid and the parathyroids.**—*Acta endocrinol.* **9,** 118-128. [In English. Abst. from authors' summary.] 2948

In rats treated with thyroxin there is an increase in the excretion of urine and of phosphorus. The blood phosphorus level is raised, that of calcium is lowered, and the parathyroids have an increase in function. The thyroxin stimulates the parathyroids indirectly *via* changes in the blood chemistry.

Probably owing to its effect on organs other than the thyroid methyl-thiouracil treatment results in an increased excretion of phosphorus in rats.

LAMY, E. (1949). Anatomie pour la pratique. V. Complément de recherches sur l'innervation de l'extrémité du membre thoracique ("main") et la construction fonctionnelle des articulations phalangiennes chez le cheval. **[Practical anatomy. V. Innervation of the foreleg and the functional construction of the phalangial joints in the horse.]**—*Schweiz. Arch. Tierheilk.* **91,** 564-580. [In French] 2949

L. gave a detailed account of the innervation of the foreleg of the horse. Hitherto unknown anastomoses of nerves were described. The phalangial articulations and particularly the joint capsules were also studied.

A number of excellent drawings are included.—W. STECK.

EMMENS, C. W. [Edited by.] (1950). **Hormone assay.** pp. xii+556. New York: Academic Press Inc. $11.50. 2950

In this volume comprising 20 chapters biological and chemical methods of assaying hormones are considered in detail, the aim being to present information in a readily accessible form to the worker in the field of assay. Chapter (1) discusses the need for statistics in assays, and is followed by a chapter on insulin, which exemplifies some of the methods described. Most hormone assays have not been examined in as detailed and in as precise a manner as has been possible in the case of insulin. The various contributors have therefore been forced, by the nature of their material, to present many methods of less certain accuracy in giving up-to-date accounts of any ways of assaying hormones that seem promising. But procedures have been limited to those which in some measure merit the word "assay" so that

qualitative tests detecting the presence or absence of a hormone but not the amount have been omitted.

There are references at the end of each chapter. The text is illustrated with many tables and diagrams and there is an index. Printing and paper are very good and the book is strongly bound.—E.M.J.

See also abstr. **2810** (ovomucin, a substrate for the enzyme of the influenza virus); **2967** (induction of mammary growth and lactation in goats); **3017** (book, kidney); **3023** (book, anatomy of chordates); **3024** (dissection guide).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

TRAWIŃSKI, A. (1948). Mięsoznawstwo. Podręcznik do użytku lekarzy weterynaryjnych, lekarzy i studentów. **[Textbook of meat inspection for veterinarians and veterinary students.]** pp. viii + 918. 216 figs. Warsaw: Lekarski Instytut Naukowo-Wydawniczy. 2nd Edit. złotys 3,000. **2951**

Chapters deal with the history of meat inspection, regulations regarding inspection of slaughter animals and meat and meat products in Poland, methods of inspection of live animals, humane slaughter, abattoirs, flaying and cutting up of carcasses, disposal of offal, healthy meat, pathological changes in meat and organs, technique, meat unfit for consumption, infectious diseases of animals, parasitic diseases, meat preservation, inspection of food products, adulteration tests, inspection of poultry, game, fish, shellfish, turtles and frogs, salmonelloses, "food poisoning" and other diseases of man caused by consumption of infected meat. The book is well indexed.

Paper and print are good. This book should be invaluable to Polish speaking students and personnel engaged in meat inspection and food hygiene.—E.G.

MARTIN, C. R. A. (1950). **Practical food inspection. I. Meat Inspection. II. Fish, poultry and other foods.** pp. vii + 322; vii + 308. London: H. K. Lewis & Co. Ltd. 4th Edit. 2 Vols. 18s. each. **2952**

These volumes, particularly that concerned with meat inspection, are packed with information of use to the veterinary surgeon and sanitary inspector. There are sections on the normal animal and carcass, methods of slaughter and preparation for sale, detailed descriptions of *ante* and *post mortem* appearances in various pathological conditions, a discussion of methods and standards of inspection and a chapter on legal procedure. The second volume deals with other branches of food industry, *viz.* fish; poultry and game; fruit, vegetables and cereals; canned foods; milk and milk products; and miscellaneous foods. Food poisoning and legal procedure are each allotted a chapter.

The diagrams, though careful and accurate are lacking somewhat in graphic quality.

—R. MARSHALL.

CLAY, H. H. (1950). **The sanitary inspector's handbook. A manual for sanitary inspectors and other public health officers.** pp. xxii + 565. London: H. K. Lewis & Co. Ltd. 7th Edit. 25s. **2953**

In this new (7th) dition there has been considerable revision; important new public legislation has been covered and the chapters on Housing, Milk and Dairies, Food control and Disinfestation have been rewritten. While the book is of most value to the student or sanitary inspector, the latter part contains several chapters of interest to the veterinarian, such as those on Milk, Food Control, Knackeries and Slaughter-Houses and Meat and Fish Inspection.

In the chapter on milk, the author brings the legislation for England and Wales up to date, enumerating the various Acts and Orders in detail and gives advice on clean milk production. No mention is, however, made of the Scottish regulations, which in many respects differ markedly from those south of the Border. The reference to cow-shed construction might well have been further elaborated.

The portion dealing with slaughter-houses and meat inspection is well written and contains much of interest, but while Memos. 62 and 62B Foods, are given in detail, no mention is made of the law as it affects Scotland. The chief diseases communicable from animals to man are listed and the pathological conditions mentioned in Memo. 62 Foods, which may render a carcass or its organs in whole or in part unfit for human consumption are discussed. The duties of the food inspector regarding rabbits, poultry and game are clearly stated.

Useful tables of weights and measures, a glossary of technical terms used in building contruction and a good alphabetical index are provided. The book will be found a most useful compendium for those carrying out the duties of a sanitary inspector, or those who are otherwise interested in Public Health.

—D. S. RABAGLIATI.

FELSENFELD, O., YOUNG, V. M. & YOSHIMURA, T. (1950). **A survey of *Salmonella* organisms in market meat, eggs, and milk.**—*J. Amer. vet. med. Ass.* **116**, 17-21. **2954**

Poultry and pork meat and offal were frequently found to be contaminated with organisms of the *Salmonella* group. The incidence of the infection was, however, low in carcasses that had been inspected according to the rules of the U.S. Dept. of Agriculture. Of uninspected poultry carcasses those collected from small domestic flocks were more often contaminated than samples from shops. The infection rate of pig carcasses was about the same for both those that had been inspected and those that had not. *Salmonella* contamination of eggs and egg powder was far less frequent than of pork and poultry, and all the specimens of pasteurized milk that were tested were free from *Salmonella* contamination.

—A. Mayr-Harting.

Bernstein, A. (1952). **Salmonella infection of hen eggs.**—*Mon. Bull. Minist. Hlth publ. Hlth Lab. Serv.* **11**, 64-67. [Abst. from author's summary.] **2955**

In the course of the examination of the contents of 3,648 eggs from various sources from Great Britain and abroad, no members of the salmonella group were isolated.

Proteus was isolated from stored eggs more frequently than from fresh ones.

Harmsen, H. (1950). Folgerungen aus dem Oldenburger Enteneierprozess. [**A court case involving *Salmonella* food poisoning from duck eggs.**]—*Dtsch. Lebensmitt. Rdsch.* 1950. 92. [Abst. from abst. in *Zbl. Bakt. I.* (*Ref.*) **149**, 353-354. (1951).] **2956**

A serious widespread epidemic of *S. breslau* enteritis in human beings in Oldenburg was caused indirectly by the use of fresh and incubated duck eggs in the manufacture of confectionery. It was ruled that the manufacturers could not be held responsible. H. discussed the implications of the use of incubated duck eggs in the light of the current German food laws and mentioned drastic new leglisation introduced in Lower Saxony.—G. P. Marshall.

Anon. (1951). Universiteit van Indonesië. Faculteit der Diergeneeskunde. Dierenarts worden. Inlichtingen over studie en toekomst van de dierenarts. 1951-1952. [**Information about the Veterinary Faculty of the Indonesian University 1951-52.**] pp. 154. Bogor: Diterbitkan oleh Fakultet Kedokteran Hewan. **2957**

The length of the course at the veterinary school at Bogor is $5\frac{1}{2}$ years. After $3\frac{1}{2}$ years the students specialise either in hygiene and infectious diseases or in animal husbandry. After the transfer of sovereignty to the Indonesian Republic in 1950, there was some uncertainty about the position of the scientific staff. There are nine professors, two lecturers, cluded lack of personal security, devaluation, the housing problem and the education problem for European children. The inadequacy of salaries makes it impossible to attract the necessary European and Indonesian technical staff. There are nine professors, two lecturers, two teachers of foreign languages and 54 students.—C. A. van Dorssen.

See also abstr. **2717** (viability of tubercle bacilli in effluent from a TB. sanatorium); **2747** (*Br. tularensis* in mud and water in the U.S.A.); **2835** (isolation of *R. burneti* from cow's milk and goat brains); **3000** (report, Gt. Britain); **3027** (book, milk).

LIVESTOCK HYGIENE

Cena, M. & Courvoisier, P. (1949). Die Bedeutung der ultraroten Wärmestrahlung für die Abkühlungsgrösse im Stall. [**The importance of infra-red radiation in relation to the loss of heat in cow byre.**]—*Schweiz Arch. Tierheilk.* **91**, 459-468. **2958**

By means of the method of Roose the temperature of the walls in a cow byre was measured in the presence and absence of the animals. The difference was about 5° C.

In the byre studied 37% of the loss of heat was shown to be due to radiation.

—W. Steck.

REPRODUCTION AND REPRODUCTIVE DISORDERS

Bane, A. (1952). **Investigations on semen production in monozygous bull twins.**—*Rep. XVIth Internat. vet. Congr.* **3**, 212-215. [French and German summaries. Author's summary copied *verbatim*.] **2959**

Preliminary results of an investigation on feeding intensity and the influence of heredity on sperm production and serving ability in bulls are reported. Six pairs of monozygous bull twins have been used in the experiment.

The bulls are fed different rations from the age of 45 days to 18 months. After this age a uniform feed is given and the sperm production is determined.

An increase in the intensity of feeding seems to influence principally the rate of physical development. Otherwise intensive feeding has only slight effect on the sperm production. When calculated for bulls on the same feeding level the variation in the number of sperms per

ejaculate (mostly due to heredity) is about twelve times that calculated for the members of the pairs (due to different feeding intensity). Thus, the sperm-producing capacity of bulls seems to be determined mainly by hereditary factors. This holds good also for the bulls' readiness and ability to serve.

SELLERS, A. F., GILMORE, L. O., GRADY, M. & ROEPKE, M. H. (1950). **Relative sedimentation rates of spermatozoa and *Trichomonas foetus* in bovine semen.**—*Cornell Vet.* **40**, 400-416. **2960**

A Holstein-Friesian bull was found to be infected with *Tr. foetus;* in view of the lack of response to sodium iodide therapy and the value of the animal genetically various procedures were tried to mimimize the risk of infection for semen. These included micropipetting, differential centrifugation of the Trichomonads and dilution.

The semen was centrifuged at various speeds for one min., and 1,000 r.p.m. gave the best results, there being marked differential sedimentation without damage to spermatozoa. Centrifugation for shorter periods was not tested.

No metritis, genital discharge or abortion followed the use of semen from a bull known to be infected with *Tr. foetus*. Similarly treated semen used on 21 fertile animals resulted in the birth of eight full term viable calves; but the number of days between insemination and recognizable pregnancy and the number of inseminations for conception were increased. "Skipped-heat" [presumably means the first expected oestrus after insemination was missed to be followed by oetrus at the next expected period] in six out of the 21 animals inseminated with processed semen was noted.

These results suggest that the processing of semen by centrifugation and dilution would be advisable only in special cases where the bull is genetically valuable and treatment has been unsuccessful.—M. B. COOPER.

BISHOP, D. W. & MATHEWS, H. P. (1952). **The significance of intravas pH in relation to sperm motility.**—*Science.* **115**, 209-211. **2961**

The study of hydrogen-ion concentration in the vas deferens revealed that it had little influence on sperm motility.—JOHN SEAMER.

BONADONNA, T. (1949). Un modello di cassetta per veterinario operatore nella pratica della fecondazione artificiale. **[A box for carrying equipment used in artificial insemination.]** *Zootec Vet., Milano.* **4**, 201-204. **2962**

B. described and gave photographs of a box fitted to hold the necessary equipment. It was stated to be similar to that described by Holt, A. F. (1948).—K. SLAVIN.

DYBING, O. (1952). **The vesicula seminalis test and the diagnosis of pregnancy in mares.**—*Rep. XIVth Internat. vet. Congr.* **3**, 149-150. [French and German summaries. Author's summary slightly modified.] **2963**

The effect of serum gonadotrophin on the seminal vesicles was compared with its effect on the ovaries in infantile mice. The dose-effect curves lay within the same range of dosage with serum gondadotrophin, but the seminal vesicle curve was less steep than the ovary curve. Infantile mice gave a relatively weaker reaction to serum gonadotrophin than do infantile rats.

The seminal vesicle test was employed as basis for diagnosis of pregnancy in mares. Its reliability proved to be just as great as that of the ovary test, the error being about 1% in both cases.

BRACHETKA, J. (1951). Prolactin-Hormonkur beim Flusspferd. **[Hormone treatment of a hippopotamus for lack of maternal instinct.]** —*Wien. tierärztl. Mschr.* **38**, 797-800. [English, French and Italian summaries.] **2964**

A hippopotamus which had killed three of its previous offspring was treated daily with prolactin, rubbed into the skin, for three weeks before the birth of a fourth calf. When the calf was born the dam accepted and suckled it normally.—CHARLOTTE M. WOOD.

AMOROSO, E. C. & ROWLANDS, I. W. (1951). **Hormonal effects in the pregnant mare and foetal foal.**—*J. Endocrinol.* **7**, No. 4. pp. l-liii of Proceedings. **2965**

The ovaries of 17 mares examined P.M. between the 46th–74th days of pregnancy contained an average of five follicles and three fully formed corpora lutea and 1–3 ova were recovered from the fallopian tubes. The gonadotrophin produced at this time does not effect the foetal ovaries as it cannot pass the placental barrier.

With the disappearance of gonadrotrophin, the maternal ovaries become inactive by about the 120th day when the production of oestrogens increases rapidly. During the oestrogenic phase, the foetal gonads show a remarkable growth mainly of the interstitial cells, The foetal gonads begin to regress at about the eighth month owing to disintegration of the interstitial cell mass, but the germinal tissue then becomes active.—J. A. NICHOLSON.

HANCOCK, J. L. (1952). **Endocrinology and reproduction in the cow.**—*Rep. XIVth Internat. vet. Congr.* **3**, 156-161. [French and German summaries. Author's summary copied *verbatim.*] 2966

An attempt has been made to correlate clinical observations on the various phases of reproductive activity in the cow with a broad concept of the hormonal control of reproduction. Clinical findings relating to normal and abnormal oestrous behaviour are discussed in an attempt to define the role of the sex hormones in the manifestation of oestrous behaviour in cattle with special reference to the possibility of synergic efforts being exerted by oestrogen and progesterone. The role of the adrenal gland in the production of virilistic changes in female behaviour is also examined.

The endocrine control of the changes in the genital tract during the oestrous cycle is discussed particularly in the light of clinical observations made on animals showing ovulatory failure, and the hormonal mechanisms operating during pregnancy are discussed with reference to clinical observations on ovarian activity and uterine tonicity in the pregnant cow.

COWIE, A. T., FOLLEY, S. J., MALPRESS, F. H. & RICHARDSON, K. C. (1952). **Studies on the hormonal induction of mammary growth and lactation in the goat.**—*J. Endocrinol.* **8**, 64-88. [Authors' summary copied *verbatim.*] 2967

Extensive morphological and functional investigations have been carried out on the artificial induction of mammary development and lactation in the goat using hexoestrol alone and in combination with progesterone, at several dose levels and proportions. Administration of the oestrogen and progesterone was either by tablet implantation or by subcutaneous injection in oily solution. Forty animals were used, of which twenty-three were ovariectomized during infancy. Special histological techniques were devised for studying and estimating quantitatively the degree of mammary development. In the later experiments this was achieved by surgically removing one half of the udder, i.e. one gland, when the lactation curve had reached a maximum. In three normally lactating goats the operation had no influence on the milk yield of the remaining gland.

For the dose levels used, the milk yields of the animals receiving oestrogen and those receiving oestrogen and progesterone did not differ significantly. In general, the artificially induced milk yields were below the expected yields had the animals come into lactation after kidding.

It appeared highly probable that the total area of secretory epithelium in the artificially developed gland was less than in the normally developed udder. A high correlation was observed between the surface area of the secretory epithelium in the entire half udder and the milk yield.

Several marked abnormalities were observed in the microscopic structure of the udders. These were less evident in the glands of the goats receiving progesterone provided the oestrogen dose was not excessive.

BRANCKER, W. M. (1952). **A practising veterinary surgeon's review of luteinising hormone.**—*Vet. Rec.* **64**, 61-64. 2968

The use of luteinising hormone to encourage ovulation and in the treatment of certain conditions in the mare, cow, ewe, bitch, cat and hen was discussed and recommended doses for each animal were indicated. Toxicity and contra-indications were described.—

—CHARLOTTE M. WOOD.

BENNETTS, H. W. (1952). **The oestrogenic effects of subterranean clover** (*Trifolium subterraneum*).—*Rep. XIVth Internat. vet. Congr.* **3**, 165-169. [French and German summaries. Author's summary copied *verbatim.*] 2969

Pasture improvement with subterranean clover, *Trifolium subterraneum,* has resulted in a great increase in farm production, particularly in Western Australia. On the other hand, clover dominance, which is hard to avoid under local conditions, had led to a serious decline in the breeding capacity of sheep as a result of female infertility, inertia of the uterus, and prolapse.

The clinical and pathological features of this complex are attributed to oestrogenic stimulation resulting from the continued ingestion of clover. It has been demonstrated that the clover contains a potent oestrogenic principle. This substance appears to be a normal constituent of the species *T. subterraneum,* whereas other clovers and other normal pasture species tested have shown little oestrogenic potency. The chemical nature of the potent principle has yet to be determined.

A number of aspects of the problem still under investigation are briefly discussed.

FINKELSTEIN, M. (1951). **Fluorometric determination of natural oestrogens in urine; elimination of fluorogenic compounds.** [Correspondence.]—*Nature, Lond.* **168**, 830-831. 2970

The urine was extracted with ether and, after solvent manipulation, separation of oestrone and oestradiol from oestriol was ac-

complished using benzene-petroleum ether and water partition.—R. MARSHALL.

ANON. (1951). **Estrogen and calcium metabolism.**—*Nutr. Rev.* **9**, 100-101. 2971

In female pigeons during the period of sexual activity the bone marrow is replaced by medullary bone. This phenomenon has been produced also by injecting oestrogen, and the ensuing changes in Ca metabolism studied by simultaneous injection of Ca^{45}. The absorption and retention of Ca were much increased, the maximum effect being noted after seven days of treatment. Both skeleton and soft tissues were markedly affected. Bone marrow was replaced by new bone and the rate of turnover of the Ca of old bone, particularly in the diaphyses, was increased. Femurs and tibiae were affected much more than humeri. In birds this physiological change is correlated with accumulation of Ca for egg shell formation. In mammals, the increase in blood oestrogen which occurs as pregnancy progresses is probably associated with the increasing Ca requirement of the developing foetal skeleton.

—E. M. CRUICKSHANK.

HALLGREN, W. (1951). Abnormt lång dräktighet hos ko (Graviditas prolongata cum/sine partu serotino). **[Abnormally long pregnancy in cows.]**—*Nord. Vet.-Med.* **3**, 1043-1063. [In Swedish. English and German summaries. Abst. from English summary.] 2972

Of nine cases of prolonged pregnancy varying between 332 and 510 days in Swedish cattle eight could be traced to the same bull. The foetal weights varied from 29 kg. to 70 kg., excessive development of the extremities being marked. It is considered that prolonged pregnancy is a hereditary disposition and animals with this tendency should not be bred from.

—J. A. NICHOLSON.

WATSON, R. H. (1952). **Seasonal variation in reproductive activity in ewes.**—*Aust. vet. J.* **28**, 1-5. 2973

An examination was made of data reported in the literature on the incidence and duration of oestrus and other evidence of ovarian activity in sheep throughout the year. A brief account was also given of some of the author's unpublished observations on the incidence of twinning in experimental flocks, and of successful pregnancies in animals mated at different seasons. It was concluded that the evidence supported the concept of an annual rhythm of sexual activity in which the activity increases gradually from a low level to a high level, and then falls gradually to a low level again, while the nature of the activity shows concomitant variations.—C. R. AUSTIN.

ROBSON, J. M. & SHARAF, A. A. (1952). **Effect of adrenocorticotrophic hormone (ACTH) and cortisone on pregnancy.**—*J. Physiol.* **116**, 236 - 243. [Abst. from authors' summary.] 2974

A.C.T.H. preparations, given at 6-hour intervals or by implantation, interrupted pregnancy in rabbits and in mice; this effect was also observed in ovariectomized rabbits and hence is not due to gonadrotrophin contaminating A.C.T.H.

Cortisone interrupted pregnancy in ovariectomized and hypophysectomized rabbits treated with progesterone to maintain pregnancy, and in ovariectomized mice so treated.

BONNIER, G. (1947). **A contribution to the genetics of milk gland activity in cattle.**—*Hereditas Lund.* **33**, 101-109. [In English.] 2975

The activity of several genes is responsible for the variation in protein and lactose percentages in milk at a fixed level of fat percentage, and different sets of genes determine the protein and the lactose percentages.

—R. MARSHALL.

GARM, O. (1951). Aktuelle stoffskifte- og sterilitetslidelser hos storfe of deres behandling. **[Metabolic disorders and diseases causing sterility and their treatment.]**—*Maanedsskr. Dyrlaeg.* **62**, 125-148. 2976

In cows with *ante-partum* paraplegia, paresis and eclampsia there was eosinopenia, lymphocytaemia and neutrophilia. In all the cases with puerperal paralysis and puerperal eclampsia which were examined P.M. there was hypertrophy of the adrenal cortex and the basophile cells of the pituitary appeared to be more active than normal. These changes indicated that the conditions were diseases of adaptation. Increased adrenal cortical action and mineral metabolism were discussed and it was concluded that potassium should be used in addition to the usual methods of treatment in these disturbances. It is suggested that reduction of stress before calving by avoidance of high protein feeding and by not adding sodium to the diet in the dry period is of prophylactic value.

Vibrio fetus and *Trichomonas foetus* infections and infectious vaginitis were discussed. Stimulation of the uterus by inducing an extra ovarian cycle by enucleation of the corpus luteum at 6–12 days after service is used to treat sterility resulting from very early abortion.

—H. BOYD.

Moulin, P. (1952). Antibiothérapie et insémination artificielle dans le traitement des endométrites de la vache. **[Antibiotics and artificial insemination in treatment of sterile cows.]**—*Rec. med. vét.* **128**, 19-25. 2977

The recommended treatment for sterility caused by endometritis is artificial insemination, with penicillin added to the semen. Tyrothricin, and subcutaneous injections of anterior pituitary hormone are also effective.—N. Dean.

Hancock, J. L. (1951). **Physiological aspects of fertility in cattle.**—*J. Endocrinol.* **7**, No. 4. pp. xlii-xlvii of Proceedings. 2978

Stilboestrol exercises an effect only when given during the follicular phase of the cycle and may induce prolonged oestrus but often without ovulation. Chorionic gonadotrophin is the most hopeful treatment in animals in which formation and regression of follicles or cystic follicles occurs, but such treatment has been fruitless in the absence of any follicular activity.—J. A. Nicholson.

Eriksson,K. (1952). **Hereditary disturbances of reproduction in cattle.**—*Rep. XIVth Internat. vet. Congr.* **3**, 216-219. [French and German summaries. Author's summary copied *verbatim.*] 2979

Hereditary reproductive disturbances in cattle are common. The author has studied three forms from a genetical point of view:—(1) Reproductive disturbances in bulls and cows because of hypoplasia of the sexual glands. (2) Incapacity to copulate in bulls. (3) Cystic ovarian degeneration in cows.

The first form is completely genetic. It is caused by a recessive gene with incomplete penetrance. Environmental factors do not have any influence other than possibly some effect on penetrance. It has been possible to control hypoplasia effectively by selective breeding.

The two last-mentioned forms seem to have a genetic basis, but environmental factors of different kinds influence their manifestation. It has therefore not been possible to clarify their hereditary course, nor to control them by breeding methods.

Garm, O. (1952). **Endocrine disturbances in bovine nymphomania.**—*Rep. XIVth Internat. vet. Congr.* **3**, 151-155. [French and German summaries. Abst. from author's summary.] 2980

The investigations revealed that nymphomania is a multiglandular syndrome for which a hereditary predisposition usually exists, and that this disease *per se* has nothing to do with infections of the genital organs.

See also absts. **2703-2705** (vibrionic abortion); **2772** (bacterial flora of the genital system in sterile mares); **2785-2789** (trichomoniasis).

ZOOTECHNY

Freney, M. R. (1951). **Experiments with a new branding fluid for sheep.** pp. 7. Geelong, Victoria: Wool Textile Liaison Office, C.S.I.R.O. [Mimeographed.] [Author's summary copied *verbatim.*] 2981

The preparation of a sheep branding fluid is described which is shown to be satisfactory in the field under a wide range of climatic conditions. Although, in general, it withstands weathering during at least 6 months, it is readily removed in the subsequent textile processing without causing any damage to the machinery concerned.

Radeleff, R. D., Claborn, H. V., Wells, R. W. & Nickerson, W. J. (1952). **Effects on beef cattle of prolonged treatment with a DDT spray.**—*Vet. Med.* **47**, 94-96. [Authors' summary slightly modified.] 2982

Hereford cattle, 10–15 months of age at the initiation of the described experiment, were treated 31 and 36 times with 0·5% D.D.T. emulsion at two-week intervals. No ill effects of the treatment were observed clinically, at autopsy, or by histological study. Chemical analyses indicated an average storage of less than 90 p.p.m. of D.D.T. in the fat of the cattle at the end of the experiment. D.D.T. storage was almost completely confined to the fat deposits of the body.

de Siqueira Villaça, D. (1951). Transporte de cavalos para competições hípicas internacionais. **[Transport of horses.]**—*Rev, Milit. Rem. Vet., Rio de Janeiro.* **11**, 129-140. 2983

Experience gained in transporting show animals by rail and sea was outlined under the headings: diet, exercise, covering materials, horse boxes, management in transit, medicaments and drugs, grooming and dosing. Boxes for air transport and methods of dealing with excited or nervous animals were briefly discussed. Small doses of sulphonal were recommended.—K. J. Sinclair.

Hancock, J. (1950). **Grazing habits of dairy cows in New Zealand.**—*Empire J. exp. Agric.* **18**, 249-263. 2984

This paper was based on four years' work and observations on 2,000 cow-days. Conditions peculiar to New Zealand were discussed. Monozygotic twins were used throughout and five different trials were described. H. discussed the general trends of grazing behaviour in terms of the following modifying factors:— Metabolic diurnal and seasonal rhythms, weather, quantity and quality of pasture, individual idiosyncracies, environment-inheritance interactions and "herd" law.

—G. V. Laugier.

See also abst. 3029 (book, breeds, types and varieties of livestock).

TECHNIQUE AND APPARATUS

Olsen, A. M. & Scott, W. J. (1950). **The enumeration of heated bacterial spores. I. Experiments with *Clostridium botulinum* and other species of *Clostridium*.**—*Aust. J. sci. Res. Ser. B.* **3,** 219-283. [Authors' summary copied *verbatim*.] 2985

Experiments with 13 strains of types A and B *Cl. botulinum* have shown that the detection and enumeration of spores surviving lethal heating become increasingly difficult as the period of heating is increased. Media which are very satisfactory for enumerating unheated spores may be unsatisfactory for enumerating spores which survive the heat treatment. By comparison with unheated spores the numerical estimates of spores surviving severe heat treatments were more dependent on thioglycollate in the medium and on the pH and temperature during incubation. As the amount of heating was increased, the surviving spores became progressively more sensitive to inhibitors in the medium. These inhibitory substances were present in all media used, and their effects were counteracted under a wide range of conditions by the incorporation of approximately 0·1 per cent. starch in the medium. The starch supplement produced no significant effect on the estimates of unheated spores. The effects of starch are a feature of the amylose portion of the undegraded starch molecule which, like charcoal or serum albumin, acts by adsorbing inhibitors from the medium. The probability that at least part of the inhibition is due to unsaturated fatty acids is discussed.

The heated spores of several other species of *Clostridium* show a similar response to the inclusion of starch in the medium.

Monod, J. (1950). La technique de culture continue. Théorie et applications. [**The technique of continuous culture.**]—*Ann. Inst. Pasteur.* **79,** 390-410. 2986

An apparatus is described which serves to keep a culture multiplying at a constant rate by continuously adding fresh and removing old nutrient medium. To have a stable equilibrium the multiplication rate should be kept below its maximum. This can be attained if one nutrient substance is used in quantities which will make it a limiting factor. This arrangement obviates the discontinuity in the life of the culture which results in subcultures.

—A. Mayr-Harting.

Marcus, S. & Greaves, C. (1950). **Danger of false results using screw-capped tubes in diagnostic bacteriology.**—*J. Lab. clin. Med.* **36,** 134-136. [Authors' summary slightly modified.] 2987

The culture of pathogenic enteric bacteria on differential media contained in tightly closed screw-capped or rubber-stoppered tubes results in a biochemical reaction which consistently varies from the type usually obtained in cotton-plugged tubes of media. This unusual result is characterized by an acid reaction. The aberrant reaction does not occur if the screw caps are loosened before incubation.

It was concluded that the unusual acid reaction noted in tightly closed tubes of Russel's double sugar agar or Kligler's iron agar inoculated with enteric pathogens was the result of an increased pressure of CO_2 in these tubes.

Henderson, D. W. (1952). **An apparatus for the study of airborne infection.**—*J. Hyg., Camb.* **50,** 53-68. [Author's summary copied *verbatim*.] 2988

A relatively simple and safe apparatus for the study of airborne infection is described. Cloud sampling and assessment techniques are described and critically discussed. Evidence is given concerning the satisfactory reproducibility of *in vitro* and *in vivo* assays. Limitations to the usefulness of the apparatus are noted.

Druett, H. A. & May, K. R. (1952). **A wind tunnel for the study of airborne infections.**—*J. Hyg., Camb.* **50,** 69-81. [Authors' summary slightly modified.] 2989

A vertical closed circuit wind tunnel is described in which a spinning top sprayer is used as a source of homogeneous particles of pathogenic organisms. The dry particle size may be set at any figure between 1 and 20μ, and the cloud concentration can be varied over

wide limits. Provision is made for humidity control. Animals may be exposed to the cloud, and samples taken from it. The apparatus can be sterilized with flowing steam and formalin.

KAISER, M. (1949). Eine hydraulische Presse für den Bedarf im Virus-Laboratorium. **[A hydraulic press for use in laboratories.]**—*Arch. ges. Virusforsch.* **4**, 153-158. 2990

A hydraulic press for the laboratory preparation of virus material was described with diagrams; there was no sieve plate present; the juices were expressed from tissue through a very fine slit in the pressure chamber and could be collected at any time during the process in a sterile condition.—S. E. FOX.

PALADE, G. E. (1952). **A study of fixation for electron microscopy.**—*J. exp. Med.* **95**, 285-298. [Authors' summary copied *verbatim*.] 2991

Osmium tetroxide fixation of tissue blocks, as usually effected, is preceded by an acidification of the tissue. This acidification is probably responsible for morphological alterations which are notably disturbing in electron microscopy. The acidification and the resulting morphological alterations cannot be prevented by homogenizing the tissue directly in OsO_4 solutions or by adding enzyme inhibitors (fluoride, iodoacetamide) to the fixative.

Fixation experiments with buffered OsO_4 solutions have shown that the appearance of the fixed cells is conditioned by the pH of the fixative. The quality of fixation can be materially improved by buffering the OsO_4 solutions at pH 7·3–7·5. The acetate-veronal buffer appeared to be the most favourable of the buffers tested. Because of these findings, 1% OsO_4, buffered at pH 7·3–7·5 with acetate-veronal buffer is recommended as an appropriate fixative for electron microscopy.

HALPERN, B. N. & PAGAUD, A. (1951). Technique de prélèvement d'échantillons de sang chez les petits animaux de laboratoire par ponction du plexus ophthalmique. **[Technique for collection of samples of blood from small laboratory animals by puncture of the ophthalmic plexus.]**—*C. R. Soc. Biol., Paris.* **145**, 1465-1466. 2992

Access to this relatively large plexus is gained by inserting a pipette through the conjunctiva and behind the eye.—ROY MACK.

STODDARD, G. E., ALLEN, N. N., HALE, W. H., POPE, A. L., SORENSEN, D. K. & WINCHESTER, W. R. (1951). **A permanent rumen fistula canula for cows and sheep.**—*J. Anim. Sci.* **10**, 417-423. 2993

The design and construction of a lucite cannula for use with a rumen fistula in cows and sheep was described, and its use was discussed.

—G. V. LAUGIER.

See also absts. **2714** (collection of sputum in cattle); **2722** (preservation of B.C.G.); **2728** (demonstration of *Past. pseudotuberculosis* in smears from lesions); **2773** (phase-contrast and electron microscopy of bacteriolysis); **2774** (staining of trypanosomes); **2898** (a field test for ketosis); **3024** (dissection guide).

MISCELLANEOUS

WODZICKI, K. A. (1950). **Introduced mammals of New Zealand. An ecological and economic survey.** pp. x+255. New Zealand: Department of Scientific & Industrial Research. Bulletin No. 98. 12s. 6d. 2994

This is a valuable compilation of data collected by the author on the distribution, biology and economic status of wild animals in New Zealand and the problems arising from their presence. Owing to favourable conditions most of the introduced animals have thriven—in some instances so well that they have seriously interfered with the interests of the human community. This survey gives a detailed description of the ecology and economic value of about 29 introduced species of wild animals and their blending into the kaleidoscope of the indigenous fauna and flora. There are some 50 full-plate illustrations and diagrams. Paper and binding are very good.—E.G.

DONALD, H. P. (1950). **The use of twins in cattle research.**—*Farming.* August, pp. 237-243. 2995

A note on the use of twins in research. D. considers that the term 'identical' should be superseded by 'one-egg' or 'monozygotic' because these twins need not necessarily be absolutely identical in appearance.

—G. B. S. HEATH.

REPORTS

GREAT BRITAIN. (1949). **Ministry of Agriculture and Fisheries. Report of Proceedings under the Diseases of Animals Acts for the years 1938 to 1947.** pp. 104. London : H.M. Stat. Off. 2s. 2996

The incidence of certain contagious diseases

in Gt. Britain during the period 1938-47 inclusive is covered.

The number of outbreaks of ANTHRAX has been gradually declining from 830 in 1938 to 121 in 1947. The 1938 figure was the highest since 1911 and the 95 outbreaks in 1946 the lowest for 50 years. In the valley of the River Nene in Northamptonshire the disease has been enzootic for many years. Spore vaccine was used to control the disease in that area.

Free services are given to recognised breeders and distributors of stocks of poultry of tests for BACILLARY WHITE DIARRHOEA and for the investigation of outbreaks of disease in accredited flocks.

The number of TB. attested herds in Gt. Britain rose from a total of 99 in 1935 to 30,436 in 1947, when the number of cattle in these herds was about 1,200,000 or 14% of the total in Gt. Britain; 518,400 of these were in England, *i.e.*, 8% of the total; 224,100 in Wales (26%) and 452,400 in Scotland (32%). Details are given of the tuberculin used and of the problems which arose in attempting to obtain a safe and efficient tuberculin. The results of tuberculin tests of attested herds revealed 0·3% reactors in 1947. Veterinary investigation following medical reports of tubercle bacilli having been detected in milk from a particular source averaged 1,492 *per annum* and an average of 1,098 cows *per annum* were detected in these tests and were slaughtered as infected with TB. Total compensation paid during 1938/47 amounted to £848,884. The average paid per head slaughtered varied from £4 18s. 2d. in 1940 to £8 18s. 10d. in 1947.

The scheme for the control of diseases of dairy cattle is detailed. At the end of 1947 there were 6,971 herds comprising 276,700 cows and heifers in the scheme. The Ministry supplied free laboratory diagnostic services and *Brucella abortus* vaccine, and supplied sulphanilamide for treating MASTITIS at a greatly reduced charge and the N.V.M.A. agreed to a low scale of fees to be charged by veterinary surgeons. The future of the scheme was under review in 1947.

In December 1944 a large-scale voluntary scheme for the vaccination of calves in registered dairy herds against CONTAGIOUS ABORTION was introduced. The vaccination is done at the routine veterinary inspections of the dairy herds. The farmer is charged 1/- per head for the Strain 19 vaccine used. The total numbers of calves vaccinated were 205,871 in 1945; 273,916 in 1946 and 239,985 in 1947. At the end of 1947 there were 61,174 herds in Gt. Britain in the scheme.

The character and history of F. & M. DISEASE are discussed. Restrictions of movement of livestock and the sterilization of swill and other material obtained from kitchen waste, have been of importance in the control of F. & M. DISEASE and also of SWINE FEVER. Outbreaks of F. & M. DISEASE in the ten years from 1938–47 totalled 1,878 and this involved the slaughter of 74,286 cattle; 733,625 sheep; 41,358 pigs and 295 goats at a compensation cost of £2,882,002. Of this the cost in 1940, 1941 and 1942 accounted for £1,775,345 of the total. In typing tests carried out during the 1938–47 period, of the 188 successful typing results 33 were Type A, three were Type A (atypical), 32 Type C and 120 Type O. In the years 1942, 1945, 1946 and 1947 there were no Type A or A (atypical) outbreaks; and no Type C outbreaks in 1940, 1941 and 1946. Type O was found in each year except 1941.

14,093 outbreaks of SWINE FEVER were confirmed in the period 1938–47 inclusive and 22,510 pigs were slaughtered; compensation paid was £27,258. Losses from the disease in the same period were 280,067 pigs (0·98% of the total population). Crystal violet vaccine has been in use since May 1947, but owing to a decrease in the number of outbreaks—37 in 1947, with losses and slaughter of only 914 pigs, sales of vaccine have been small.

There were no outbreaks of RABIES in the 1938–47 period. The only cases diagnosed were in imported animals while in quarantine. These were one in 1938, two in 1939, one in 1946 and three in 1947. One of the latter had been eight months in quarantine when it developed rabies.

During 1947 a serious epizootic of NEWCASTLE DISEASE occurred in England and Wales. The disease had almost certainly been introduced by the importation of infected carcasses of table poultry among consignments from Europe. Mortality among infected flocks was variable, in some cases as high as 100%, in others comparatively low. The disease was eventually brought under control by the restriction of movement of live and dead poultry and also the closing of all markets in England and Wales. Altogether 169,684 birds were slaughtered and compensation amounting to £169,400 was paid. As day-old chicks did not spread the disease the restriction of movement order was not applied to them. General preventive measures used included the compulsory boiling for one hour of swill fed to poultry.

The 46 outbreaks of MANGE in horses in 1938 were gradually reduced to 9 in 1943 and have since dropped to 1 in 1947.

The Warble Fly (Dressing of cattle) Order

of 1936 was introduced to prevent damage to hides. Dressings containing derris were recommended, but shortage of supplies during the war caused a resort to other preparations. The number of counties in England infected with SHEEP SCAB has declined since 1938 from 27 to 7 or less *per annum* in the four years 1944–47. In Wales the figures have not exceeded 7 outbreaks in the 10 years and in Scotland there have been no outbreaks since 1941. Experiments in 1947 on a large scale proved the value of benzene hexachloride for treating sheep by a single dipping

Details are given of research work carried out at the Veterinary Laboratory. These include the work on brucellosis, bovine mastitis, tuberculosis (tuberculin research), vaccination against Johne's disease, pyelonephritis in cattle, swine fever (crystal violet vaccine tests), swine erysipelas (vaccine tests), necrotic enteritis in pigs, staphylococcal mastitis in ewes and poultry diseases.

The veterinary Investigation Service was taken over by the Ministry in 1946. There were 13 Veterinary Investigation centres in England and Wales. This Service forms a link between the Veterinary Laboratory and the field staffs of the Divisions. At each centre there is a Veterinary Investigation Officer and one or two Assistant V.I.O.'s. There is a well equipped laboratory at each centre with a complement of technicians and an office with clerical staff. The centres carry out investigation of local problems and assist veterinary surgeons in the diagnosis of disease with the laboratory facilities they have available.

The International Veterinary Bureau which was established in Paris in 1924 renewed its activities after the war in 1945. Its work had been drastically curtailed throughout the German occupation of France.

Tables in the Report give the comparative figures of the years 1938 to 1947 of the outbreaks of the various scheduled contagious diseases.—J. A. GRIFFITHS.

GREAT BRITAIN. (1951). **Annual report of the West of Scotland Agricultural College, for the year ending 30th September 1951.** pp. 56. Stirling : Jamieson & Munro Ltd. 2997

Investigation into milk which failed to pass the designated standards showed that where the bacterial count was low, the milk may fail to pass the coliform test owing to the farm milk receiving direct from the udder of a cow, coliform organisms in sufficient numbers to give a positive coliform test in one-hundred ml. portions.

It was found that SWAYBACK in lambs may be prevented by the supply of 250 mg. of copper sulphate to the ewe at "udder-locking" or immediately before lambing.

The Veterinary Investigation officer carried out research on DROPSICAL CALVES and on ACETONAEMIA in cows in conjunction with the Moredun Institute.—D. S. RABAGLIATI.

GREAT BRITAIN. (1949). **The Animal Health Trust. Third Report for the year 1st July 1948 to 30th June 1949.** pp. 75. London: Animal Health Trust. 2998

In this third report the various activities of the Trust are discussed briefly. Under Educational Grants 41 awards of from £30 to £200 have been made to undergraduates and in addition 29 Evans Final Year Studentships of £50 each have been made to the best student entering the final year at each Veterinary School. Sixteen Research Training Scholarships have so far been awarded of an annual value of £320 to £340. Research Fellowships have been awarded to 25 graduates who have experience in research; these vary from £400 to £800 *per annum* and have given great opportunities and experience to veterinary research workers.

The income of the Trust continues to expand and had reached £72,000 in 1949.

The research work already carried out has been freely published and made available to the veterinary profession and in that way is of benefit to all animals and owners of animals. —J. A. GRIFFITHS.

GREAT BRITAIN. (1949). **Colonial Development Corporation. Annual report and statement of accounts for the year ended 31st December 1948.** pp. 31. London: H.M. Stat. Off. 1s. 2999

The Colonial Development Corporation was formed to implement the recommendations of the Overseas Resources Development Act of 1948. The Corporation's main task is to develop undertakings which are likely to improve the standard of living of the Colonial peoples by increasing their productivity and wealth. Conditions of climate, soil, disease, under-nutrition, ignorance and lack of incentive to work introduce elements of uncertainty into all undertakings in the tropical colonies. The Colonial Development Corporation recognises that it is dependent on all the help possible from the Colonial Governments and their peoples using their own resources in a united effort to make use of the financial help given by Great Britain to bring about success.

The Board of the Corporation believe Africa to be the most promising field for large-scale de-

velopment. They do not think that schemes should be entirely agricultural as the shortage of manufactured goods must be catered for, either by developing local industries or by increasing imports, or by both.

There has been no lack of projects from which to choose: some, in the Board's view, practical, with plans etc. well thought out and efficiently prepared, others of a more theoretical character.

A brief report is made on each of the Divisions of the Corporation.

Animal husbandry in the Colonies has great possibilities. "The Board believe that the prospects are of an order which, if vigorously pursued, will make a material contribution to world meat supplies." Kenya, Bechuanaland, Nyasaland and Somaliland have been visited to assess their potentialities, but up to the date of the report the only livestock scheme launched was the Gambia poultry scheme which has since been abandoned. Schemes for Swaziland and the Falkland Islands were under investigation.

—J. A. GRIFFITHS.

GREAT BRITAIN, (1950). **Report of the Departmental Committee on Export and Slaughter of Horses.** pp. iv. + 35. London: H.M. Stat. Off. 9d. 3000

The numbers of horses exported declined from 58,689 in 1920 to 9,063 in 1930 and by 1939 to 2,668. Post-war conditions indicate that any horses exported, apart from valuable animals, are destined for slaughter and the Committee is emphatic that the export trade in horses for slaughter should not be resumed.

There were 1,083,900 horses in the U.K. in 1939. In 1949 the numbers had fallen to 617,100.

Neither horses nor horse meat are covered by the Public Health (meat) Regulations in England. The inspection of horse meat therefore cannot be as thorough as that of other types of meat. The regulations should be amended to include the inspection of horse meat.

It is recommended that a knackery and a horse slaughterer's business should not be combined or carried on in the same premises if any animals are slaughtered for human consumption. The sale of horse meat for human consumption has increased in England during the war and immediate post-war years. There has been a great decline in the use of horses in agriculture as well as in transport, and on this account the Committee think the slaughter of horses for human consumption must continue.

The Committee have considered the question of the transport of horses by sea, air, rail and road and made various recommendations.

The Committee's recommendations cover the consideration of means to alleviate the sufferings of horses loaded in road vehicles in a manner likely to cause injury to an animal.

—J. A. GRIFFITHS.

CANADA. (1949). **British Columbia. Forty-third Annual Report of the Department of Agriculture for the year 1948.** [PUTNAM, F.] pp. 225. Items of veterinary interest pp. 105-153. Victoria, B. C.: D. McDiarmid. 3001

HAEMORRHAGIC SEPTICAEMIA is stated to occur frequently "wherever there is much movement of cattle".

NECROTIC STOMATITIS is more widespread.

Vaccination against BLACKLEG is not compulsory and the disease still causes losses in the areas where it is enzootic.

There were no outbreaks of EQUINE ENCEPHALOMYELITIS.

CASEOUS LYMPHADENITIS is being brought under control.

ACTINOMYCOSIS is said to be gradually disappearing from most of the range cattle. This results from early diagnosis and elimination of infected animals by the cattlemen.

ACTINOBACILLOSIS is becoming more widespread through the trade movements of cattle.

MASTITIS is the main cause of replacements in dairy herds. Veterinary inspections are being made periodically to detect infected cows and to inspect dairy premises.

Calfhood vaccination against BRUCELLOSIS is being practised. In the 7 years and 4 months ending November 1948, 56,517 calves were vaccinated.

There are area programmes for the control of TB. and BRUCELLOSIS which include veterinary inspections, tuberculin tests, and the vaccination of calves with *Br. abortus* vaccine.

There were 460 mink farms licensed. DISTEMPER and NUTRITIONAL ANAEMIA are mentioned as causes of losses.—J. A. GRIFFITHS.

NEW ZEALAND. (1948). **Annual Report of the Animal Research Division.** [FILMER, J. F.] pp. 1-20. Wellington: E. V. Paul, Government Printer. 3002

Brief references are made to work on inheritance of carcass quality, nutrition of breeding ewes, fecundity (attempts to increase fertility in ewes by injection of gonadotrophin before oestrus were unsuccessful), mammary gland development and KETOSIS in pregnant ewes.

Rats were used to study RICKETS and unthriftiness in lambs wintered on green oats. All diets were adjusted to the absolute phosphorus

content and Ca : P ratio of the standard rachitogenic diet. All produced normal calcification. Growth on grass diets was markedly superior to the oat diets. It was concluded that there may be a factor in green oats depressing growth in rats.

Sheep disease projects included investigation of an outbreak of BLACKLEG in sheep following inoculation with blackleg vaccine, (of 950 sheep inoculated, 88 died). It was established that the vaccine was uncontaminated but dust from the wool-shed floor contained 39,000 blackleg spores per g.; 10 mg. dust killed a susceptible sheep within 48 hours of inoculation. Vaccine was shown to confer a satisfactory immunity. Experiments also demonstrated sheep to be more susceptible to *Cl. chauvoei* than g. pigs. 0·01 ml. regularly killed sheep while g. pigs survived injection with 0·05 ml. of the same culture.

Lameness in sheep after dipping in baths of "gammexane" and rotenone which had stood for some days was shown to be due to penetration of abrasions by *E. rhusiopathiae*. Satisfactory control was effected by addition of an antiseptic to the dip fluid.

Farmers were recommended to control FACIAL ECZEMA after warm rains in March and April by confining sheep in small areas, at not less than 100 per acre, and feeding hay. Results were excellent. 80% of a small test flock which was not confined developed severe FACIAL ECZEMA.

Dairy cattle breeding projects included a study of sperm dose rates, using the uterine technique for insemination. Three groups of cows received 25 million, 50 million and over 50 million sperms respectively per dose. Analysis of results suggested that the smallest dose was as effective as larger doses; it was not more affected by storage or by the fertility of the bull than the larger doses. However, more experienced technicians obtained better results with low dose rates than did less experienced operators. Over-all conception rate was slightly under 50%, this being lower than the previous year and suggesting that semen of lower quality was used.

The cervical technique was tested, using 0·15 ml. of semen containing 50 million sperms, in an attempt to counteract the suggested loss through semen flowing from the cervix immediately after insemination. Only 14 cows conceived of 50 inseminated by this method and it appears to be unsuitable for routine work.

Working with pairs of identical twin bulls, the sexual strength of bulls fed on concentrates indoors was compared with that of their twins at grass. Grass-fed animals had some superiority, but exercise was found to have no beneficial effect.

An examination of foetal development of the calf has been included in the dairy cow nutrition studies. In addition to yielding fundamental knowledge on growth, information derived from the experiment will permit accurate correction of cattle weights and live-weight changes can then be studied independently of pregnancy effects.

Experiments, in relation to the lifetime performance of dairy cows, continued with two systems of pasture management, one intended to provide an even, high level of nutrition and the other controlled almost entirely by seasonal effects. Four groups of animals are being studied, two being kept on a single system for life and two changing from one system to the other at first calving. Markedly higher weight gains are noticeable in calves and yearlings kept on pastures under the first system of management. Heifers on this system came into oestrus at an earlier age but required more services per conception. The season under review is the first for which butter-fat production results are available. Yields were highest from heifers kept on the even, high system, followed by those transferred to this same system on calving. Heifers kept on the uneven system gave the lowest yield. At three years of age, heifers on the even, high system throughout averaged 107 lb. heavier than those on the uneven plane throughout. Live weights of the other two groups occupied intermediate positions. It is stressed that, as results will be influenced by seasonal conditions, firm conclusions cannot be drawn for some years.

Field surveys of milking machine equipment have shown substantial numbers of relief valves and vacuum gauges to be working incorrectly. A new design of "weighted relief valve" proved highly efficient under test and has been successfully adapted for commercial production.

Cattle disease projects included further experiments on the efficiency of penicillin in the control of STREPTOCOCCAL MASTITIS.

Vaccination has reduced the incidence of CONTAGIOUS ABORTION to less than 2% in herds under observation. In a comparison of inoculation by injecting 1 ml. of vaccine into the tail with subcutaneous injection of 5 ml. the former method was shown to be not quite so satisfactory. Subcutaneous injection has therefore been continued.

Although TRICHOMONIASIS was strongly suspected to occur in New Zealand for a number of years, definite diagnosis has only recently

been established. Control may prove difficult in beef herds in hill country.

Feeding experiments with variegated thistle (*Silybum marianum*) demonstrated its toxicity. Samples containing 13·1–14·4% of potassium nitrate were toxic, those containing 1·4–4·1% were harmless.

Aerial top dressing of hill pastures with saturated solution of cobalt sulphate, at a rate of 20 oz. of the salt per acre, gave a satisfactory increase in the cobalt content of pasture samples. The cost was 7d. per acre, against 1/- per acre for hand dressing.

Dressing of pastures with molybdenum is being used to study PEAT SCOURS. Feeding molybdenum to sheep has not been so effective in reducing copper storage in the liver as in cattle.

Parasitological experiments included unsuccessful attempts to stimulate immunity to *Haemonchus* in sheep, by subcutaneous injection of ex-sheathed larvae. Attempts were also made to transfer passive immunity to lambs by injecting large doses of serum from immune sheep. When challenged, the lambs proved fully susceptible.—T. LEACH.

NEW ZEALAND. (1950). **Department of Agriculture. Annual Report for year 1949-50. [Containing Report of the Director of Animal Research (FILMER, J. F.) pp. 32-70 and Report of the Director of the Livestock Division** (MCILWAINE, J. E.) pp. 93-108.] pp. 128. Wellington: R. E. Owen, Govt Printer. 2s. 3d. 3003

The following diseases are listed as having been recognized for the first time in New Zealand: CONGENITAL CYSTIC KIDNEY, CONGENITAL SKIN FRAGILITY, both in sheep, INFLUENZAL ARTHRITIS in piglets, INFECTIOUS AVIAN ENCEPHALOMYELITIS and CONTAGIOUS CANINE HEPATITIS.

Sheep disease projects include extended details of investigations into FACIAL ECZEMA and other photosensitivity conditions. Studies in this connexion have been made on lambs grazing *P. miliaceum* and both rats and g. pigs have been used as experimental animals. Particular attention has been given to the histological and biochemical aspects of these conditions. Investigation of ENTEROTOXAEMIC CONDITIONS yielded some strains of *Cl. welchii* differing from Type D. These originally appeared to be Type C strains, but, while elaborating comparatively large amounts of delta haemolysin, lethal toxin was produced only in low concentration. "SOUTHLAND" PNEUMONIA is a specific disease of aged ewes, in good condition usually suckling a lamb. The incidence is seasonal, October–January, sudden in onset and usually fatal in 12–24 hours. Disease is often associated with shearing, deaths occurring 4–5 days later. A haemolytic pasteurella-like organism has been demonstrated, but is not constant. Attempts to transmit the condition have failed. During the period under review, SALMONELLOSIS in sheep, caused by *S. typhimurium*, reached important proportions. Ewes were mainly affected, losses averaging 1–3%. Deaths were often sudden; affected animals were sometimes noted scouring profusely. As the outbreaks in a flock progressed, later cases became less acute. Experience shows that any farmer with sheep-proof fences can prevent FOOT ROT by quarantining freshly purchased sheep and not allowing them on to paddocks until completely free from the disease.

Dairy cattle breeding, including artificial insemination, and nutrition studies include observations on the effect of *Br. abortus* immunization in bulls. One each of four pairs of identical twin bulls was inoculated with Strain 19 at ten months, the semen being examined for *Br. abortus* at 18 months; all proved negative. Every bull was then infected ocularly with 150 million virulent *Br. abortus* organisms and no change was noted in the semen during the following eight months. Inoculation was repeated, using 10 thousand million organisms intravenously. All developed fever and anorexia for a few days. The quantity and quality of semen was unaffected. *Br. abortus* was recovered from the semen of only one bull and this animal showed no orchitis nor deterioration in semen quality in the following five months.

Cattle disease projects included observations on herds treated with 25,000 international units of penicillin cerate per quarter when drying off. Disinfection was also practised and lactating animals receiving 25,000 units per quarter for three consecutive days. One herd, with a low initial incidence of infection, was free at two post-treatment tests. Three other herds showed slight reductions in the incidence of mastitis during the early months of the following season. Other experiments indicated procaine penicillin cerate to be more efficient than calcium penicillin cerate in maintaining the penicillin concentration in milk. Three injections of 25,000 units of procaine penicillin gave bacteriological cures in 79% of 162 quarters with latent *Str. agalactiae* infection and 65% in 67 clinical cases. In preliminary trials, single injections of aureomycin sterilized 19 of 20 quarters with latent *Str. agalactiae* infections. TRICHOMONIASIS exists throughout the more

important dairying areas of North Island. No cases have so far been diagnosed from South Island. By means of blood group testing, 17 out of 18 cases of doubtful parentage in cattle were satisfactorily answered.

FOOT ROT has been noted in pigs, aged 3–6 months, housed on concrete floors; the lesions resemble necrotic ulcers. Although not fatal, the disease causes loss by prolonging the fattening period. Treatment by intraperitoneal injections of sulphonamides proved unsuccessful.

Pastures top dressed aerially with cobalt-sulphate in 1947 have so far retained a satisfactory cobalt content for over two years. A goat heavily infested with lice was closely penned with a sheep, but the latter did not become infested. Goat lice transferred manually to the sheep completely disappeared after a week. Sheep keds became established on the goat. Toxicological studies included PHOSPHORUS POISONING and PHENOL POISONING in sheep and B.A.L. INTOXICATION in the same species.

Of 18,978 cattle tuberculin tested by departmental veterinarians, 4·5% reacted. The number of cattle examined in abattoirs increased to 629,010; 5·7% were affected with TB., many slightly, a decrease of 0·6%. The number of cattle examined in abattoirs in- 688,498; 14% were affected with TB., an increase of 0·3%.

Increased use is being made of CONTAGIOUS ABORTION vaccination for heifers. Sporadic outbreaks of *S. typhi-murium* infection have occurred in cows, calves, sheep and pigs in some districts of North Island.

The incidence of LYMPHADENITIS in mutton carcasses examined in South Island abattoirs rose from 3·97% in 1948–49 to 4·22%. BLACKLEG is now recognized as one of the most important causes of mortality in sheep and preventive inoculation is widely practised.

Full-time field veterinarians (poultry) have been appointed in both islands to strengthen the diagnostic and disease control service. Acute FOWL CHOLERA occurred in South Island, the first outbreak in this form reported in New Zealand. Control was effected by slaughter of the infected flock.—T. LEACH.

SOUTHERN RHODESIA. (1950). **Report of the Director of Veterinary Services for the year 1949.** [HUSTON, P. D.] pp. 19. Salisbury: Rhodesian Printing & Publishing Co. Ltd. **3004**

Work in both the field and laboratory services has been hampered by staff shortages during the year.

The incidence of TB. amongst dairy cattle is estimated to be 8%, on the results of a trial test in the Umtali District. A further test will be carried out before introducing a voluntary eradication scheme.

The first outbreak of BACILLARY WHITE DIARRHOEA since 1939 was diagnosed during the year. Previously a 20% sample of the breeding flock was tested before certifying the farm free from infection for the export of day-old chicks. Since this outbreak occurred, a 100% test of breeding flocks has been instituted.

Ticks are reported to be increasing throughout the Colony; this is attributed principally to the cessation of dipping from June to October. Aggravating factors have been the lack of water for preparation of dips and the need to defer dipping until December in some areas, on account of the very poor condition of the cattle after the drought period. Dips containing benzene hexachloride are found to deteriorate in efficiency over a four-month period, even when fluid removed by regular dipping is replaced at a greatly increased strength. Use of these dips in conjunction with arsenical preparations gives satisfactory results. One farm only remained under the statutory two-year quarantine period for EAST COAST FEVER at the end of the year. Control is difficult, owing to lack of fencing, shortage of water preventing dipping and lack of grass leading to the use of communal pasturage. The increasing numbers of ticks have also resulted in a greater incidence of PIROPLASMOSIS, ANAPLASMOSIS and HEARTWATER, notably in the Bulawayo District. Difficulty has been experienced in controlling the reaction of animals inoculated against REDWATER. Phenamidine is slower in action than trypan-blue, formerly used for this purpose; a second treatment is frequently needed and relapses are not uncommon.

Phenanthridinium has given good results in the treatment of TRYPANOSOMIASIS, particularly in early cases.

Over a quarter of a million doses of BLACKLEG vaccine were prepared and issued. Very good results have been obtained with AFRICAN HORSE SICKNESS vaccine from S. Africa. Owners are advised to have their animals inoculated for three successive years and are encouraged to continue annual inoculations thereafter.

Farms on which outbreaks of INFECTIOUS EPIDIDYMITIS and VAGINITIS occurred often had excellent breeding records immediately before infection became apparent. Control of the disease has shown that there is little spread from farm to farm if bulls are properly controlled. Approval has been obtained for the establishment of a separate centre, which could be ade-

quately isolated, for investigations into the disease. With the principal objective of controlling this disease, an artificial insemination centre was started, using two Friesland bulls. Results were variable; many farmers carried out inseminations on their own cattle with semen from the centre and this procedure proved unsatisfactory; the conception rate was also depressed as many of the cows inseminated were infected or were barren.—T. Leach.

Southern Rhodesia. (1951). **Report of the Director of Veterinary Services for the year 1950.** pp. 20. Govt. Printing & Stationery Dept. [fcp.] **3005**

The year was not a good one for livestock owing to drought conditions.

Tick-Borne Diseases such as Theileriasis, Redwater, Anaplasmosis and Heartwater have been more prevalent in areas where dipping is not compulsory. In the compulsory dipping areas where East Coast Fever is being controlled there is great decrease in the numbers of ticks.

F. & M. Disease broke out again in the Fort Victoria District.

Rabies appeared at 32 centres in seven Native Districts and one child died of Rabies.

Of 126,000 carcasses examined by Veterinary inspectors, only 37 were condemned for TB. At Salisbury abattoirs there was no generalized case in 44,805 carcasses examined. Sixteen animals had localized infection in lymph nodes. In the dairy herds, however, a pilot survey revealed 23·6% reactors in 1,442 head tested. 50% of herds tested had less than 10% reactors. The bulk of the infected animals were in three herds. In Umtali where the incidence of infection is low, reactors are slaughtered. Where the incidence is high, clinical cases are destroyed and the remaining reactors segregated. Calves of the latter group are removed at birth and admitted to a clean herd after passing a tuberculin test. This policy is to be continued for four years, when the remaining reactors are to be slaughtered and the scheme reviewed. There is also a voluntary scheme of control. Of 864 imported cattle tested only five were TB. reactors.

Native bulls have been proved resistant to Contagious Vaginitis and Epididymitis. Artificial insemination and sterility examination of females brings the disease under control. There were 133 farms infected.

Of 11,253 cattle treated for Trypanosomiasis with phenanthridinium, 73% were *T. congolense*, 20% *T. vivax* and 7% mixed *T. vivax* and *T. congolense* infections.

There were 74 deaths from African Horse Sickness. These included a large proportion of animals which had been vaccinated.

Evidence of Liver Fluke Infestation was found in 60% of cattle slaughtered.

Other diseases mentioned as being prevalent are Blackleg, Sheep Scab, Mange in horses and cattle, Lumpy Skin Disease, Sweating Sickness, Ophthalmia and infestation with *Cochliomyia*. Mineral Poisoning is mainly caused by arsenic (411 animals), but Mercurial Poisoning killed 51 pigs, Nitrate Poisoning 64 cattle and Cyanide Poisoning 25 cattle. Plant Poisoning also causes considerable mortality in all districts.

—J. A. Griffiths.

Nigeria. (1950). **Annual Report of the Veterinary Department for the year 1948.** [Beaton, W. G.] pp. 85. Lagos: Govt. Printer. 9d. **3006**

A reorganization of the Department was completed during the year by setting up regional headquarters at Kaduna for the Northern Region, Enugu for the Eastern Region and Ibadan for the Western Region. Each region is in charge of an assistant Director, who has control of funds voted for expenditure in his region.

The report consists of nine sections:— (1) Headquarters and Central; (2) Northern Region; (3) Eastern Region; (4) Western Region; (5) Colony; (6) Veterinary Stock Farm, Vom; (7) Research Division; (8) Veterinary School, Vom; (9) Works Section.

Difficulties were occasioned by staff shortage. Five professional officers left the service during the year and only two were recruited. Shortage of officers precluded the posting of other than skeleton staff to the various regions, especially to the West and East. In addition, two more officers were expected shortly to retire and regionalization diverted to administrative duties three officers previously serving in executive posts.

In the face of this severe shortage of staff, departmental activity was mainly directed to disease control, especially Rinderpest, Bovine Contagious Pleuro-Pneumonia, and Blackleg. These diseases were controlled largely by mass prophylactic vaccination and police measures, together with vaccination in the case of outbreaks. Trypanosomiasis takes the heaviest toll of cattle, but little treatment was given, partly because of hopes that antrycide would prove a better product than those available.

The stock population was believed to be in the region of 5,000,000, but no efficient census has been made and figures are based on collec-

tion of 'jangali' tax, which is largely evaded, and hide exports. Livestock improvement was confined to efforts at castration of scrub bulls, treatment of calves for HELMINTHIASIS and demonstrations in fodder production and conservation. Existing livestock improvement centres were in operation at Vom and in the Cameroons and four other centres are visualized in the Development plan.

The trade in livestock continues and adequate control was maintained of the trade routes by the operation of frontier inspection stations and control posts. During the year a livestock husbandry mission of three members, Sir Frank Ware, Mr. Thomas Shaw, and Mr. Gilbert Colville, toured both Northern and Southern Nigeria. [For report, see next abst.]

On the research side, staff was at full strength. Vaccines and sera were supplied in larger quantities than in previous years, and preparation occupied the greater part of the time of the staff. An interesting account, written by the late R. W. M. Mettam of the research activities of his staff is given. This should be consulted in the original.—R. N. FIENNES.

NIGERIA. (1950). **Report of Nigerian Livestock Mission.** [SHAW, T. & COLVILE, G.] pp. 175. London: H.M. Stat. Off. 5s. [Colonial No. 266.] 3007

Nigeria consists of two very different climatic zones, the very large arid zone occupied by nomadic cattle-breeding Fulani tribesmen and the much smaller humid costal zone which is mainly devoted to crop husbandry and where cattle are small and of little value.

The Agricultural Department has in the past confined its attentions largely to the humid crop growing area and has had little contact with the Fulani cattle-owning population. The Veterinary Department on the other hand has worked in the Fulani country and by its success in control of the major diseases, its supervision of stock routes along which cattle travel, its development of the hides and skins trade, and of livestock breeding farms has gained the confidence of the Fulani.

The Mission which has written the report consisted originally of Sir Frank Ware a veterinarian with long experience of animal husbandry development in India, Mr. G. Colvile a successful cattle rancher from Kenya and Mr. T. Shaw formerly Secretary of the Pig Marketing Board of Northern Ireland.

Sir Frank Ware contracted trypanosomiasis during his stay in Nigeria and had to resign from the Mission and has not contributed to the report. The Mission spent about six weeks in Nigeria and had five conferences with veterinary officers, eight with agricultural officers, 13 with bankers, businessmen and commercial undertakings and many more with administrative officers, missionaries, forestry officers, geologists, public work department officials, survey department officials, medical officers, etc.

They discuss the various breeds of cattle in the territory and the cattle population figures. They reject the official figures of the administrative officers and veterinary officers and use their own much higher estimate of 8,000,000 head. An account is given of the excellent work of the veterinary department in disease control and development of the livestock industry. The Agricultural Department is said to be short of staff for the work of improving the plant side of agriculture.

In discussing whether the animal industry should be the responsibility of the agricultural or veterinary departments it is stated on page 26 that "The function and training of the veterinary officers is to combat animal disease, that of the agriculturist the breeding and management of livestock". Other subjects discussed are whether meat inspection should be in the hands of veterinary or medical officers, whether *ante-mortem* inspection of slaughter cattle is of any value, the place of antrycide in future control of trypanosomiasis, the physiology of zebu cattle and so on. Numerous recommendations are made, among them that the agricultural department should be given sole charge of the animal industry, that large-scale abattoirs and meat canning factories should be built and operated by boards without any veterinary representatives, that rail transport for meat and cattle should be provided and that the veterinary department should confine itself purely to disease control and use semi-trained indigenous staff to replace some of the qualified veterinary officers.

This report will require very careful study by men well acquainted with the country and its livestock problems.—M.C.

EAST AFRICA. (1950). **Annual Report of the East African Veterinary Research Organization for 1950.** [BINNS, H. R.] pp. 37. Nairobi: Govt. Printer. 3008

The first part of the Report deals with the new Research Station which is being built at Muguga and which it is hoped to have completed and equipped towards the end of 1952. The land extends to 1,000 acres and is adjacent to the 1,600 acres of the Forestry Research Station. £300,000 has already been approved for the buildings and equipment.

It is intended to carry out research on problems important to Kenya, Tanganyika and Uganda and it has been decided to concentrate on a few diseases only which are considered to be of primary importance. These are BOVINE CONTAGIOUS PLEURO-PNEUMONIA, RINDERPEST and HELMINTH INFESTATION.

The report describes some research work carried out in 1950 and includes a survey on TB., TICK-BORNE DISEASES, especially EAST COAST FEVER, RINDERPEST, especially the Kabete attenuated goat (K.A.G.) virus and lapinized virus and studies on helminthology.

—D. S. RABAGLIATI.

CYPRUS. (1950). **Annual Report of the Chief Veterinary Officer for 1950.** [ROE, R. J.] pp. 6. [Mimeographed.] **3009**

No outbreaks of major diseases were reported and constant care is taken to prevent their introduction from neighbouring countries. No case of TB., Contagious Abortion, nor SHEEP POX or GOAT POX, which at one time had been prevalent, occurred, but during the summer there was a mild outbreak of THREE-DAY SICKNESS in cattle. NEWCASTLE DISEASE, which had been severe in 1949, became progressively less and no fresh cases occurred after May. 55,725 doses of vaccine, obtained from Israel, were used.

Meat inspection in Cyprus is carried out by inspectors of the Local Authority, who have passed through the Sanitary Inspectors' school, but their work is supervised by the veterinary staff. A total of 138,530 carcasses of all classes was examined against 139,935 in the previous year.—D. S. RABAGLIATI.

INDIA, ASSAM. (1950). **Annual Report of the Civil Veterinary Department, Assam, for the year 1947-48.** [MITRA, A. K.] pp. 25. Assam: Govt. Press. Annas 12 or 1s. 2d. **3010**

RINDERPEST was widespread throughout the Province and the mortality was 9,558 as against 7,436 in the previous year. Deaths due to HAEMORRHAGIC SEPTICAEMIA, BLACKLEG, ANTHRAX, SURRA and F. & M. DISEASE were 2,474 as against 2,347 in the previous year. Other contagious and parasitic diseases were responsible for the death of 11,237 animals as against 13,002 in the previous year.

Preventive inoculation against RINDERPEST was carried out with goat tissue vaccine during outbreaks and 175,825 animals were protected. Besides 15,478 animals were protected with serum alone. Of these, 462 subsequently died. Against HAEMORRHAGIC SEPTICAEMIA 5,384 animals were protected with serum alone. Details of mortality and preventive inoculation, etc., are tabulated.

In the three Government Hospitals 9,367 animals were treated as against 8,372 in the previous year. The touring Veterinary Assistant Surgeons visited 19,247 villages, performed 23,206 castrations, treated 24,643 animals for contagious and 158,837 for non-contagious diseases.

The number of approved stud bulls (including buffalo bulls) and horse and donkey stallions was 180 and 13 respectively.

—M. K. SREENIVASAN.

PAKISTAN. (1950). Sind. **Annual Administration Report of Civil Veterinary Department, Sind, for the year 1948-49.** [MOHEY-DEEN, M.] pp. 18. Karachi: Govt. Press. 4 Annas. **3011**

Five horses died of SURRA and two from other contagious diseases; 308 cattle died of RINDERPEST, 363 of HAEMORRHAGIC SEPTICAEMIA, 94 of F. & M. DISEASE and 368 from other contagious and parasitic diseases. Among sheep and goats there were seven deaths from ANTHRAX, 241 from CAPRINE CONTAGIOUS PLEURO-PNEUMONIA, 78 from SHEEP POX, four from SCABIES and 1,751 from other contagious and parasitic diseases. There were six fatal cases of RABIES in dogs and four fatal cases of SCABIES in camels.

8,136 cattle were inoculated against RINDERPEST using goat virus and 3,875 with serum/virus; 2,246 cattle were inoculated with HAEMORRHAGIC SEPTICAEMIA vaccine and 3,472 with serum alone. 4,177 goats were inoculated against CAPRINE CONTAGIOUS PLEURO-PNEUMONIA with lung vaccine.

The Veterinary Hospitals treated 51,572 sick animals and supplied medicine for 19,836. Castrations totalled 8,033. Veterinary Assistant Surgeons treated 47,566 animals while on tour.

Details of staff, finance, breeding stock and livestock farms are given in tables.

—J. A. GRIFFITHS.

(1950). **Report of the FAO Mission for Nicaragua.** pp. x+200. Washington & Rome: Food & Agriculture Organization of the United Nations. $2.00. **3012**

The mission of three comprised experts on crop husbandry, animal production and forestry, with a technical secretary. Their instructions were to formulate an over-all plan of agricultural and forestry development, based on modern technical aids.

Poor communications and transport at present make many areas too inaccessible for

agricultural development. Domestic stock are of Spanish origin. Numerous attempts have been made to improve them by using imported sires. Little success has been achieved, owing to poor adaptation and inadequate nutrition.

Livestock husbandry is a major activity of the country. The Mission considers that animal production could be considerably expanded by adopting a long-term programme, including better breeding and feeding of animals available. It is recommended that dairy cattle should be improved by selection of indigenous (Criollo) cattle or by a cross-breeding programme and by better management, including vigorous efforts to overcome the present severe calf mortality by using nurse cows.

Little has been done to improve beef cattle, although large areas are well adapted for ranching. Up-grading by means of zebu indigenous matings is advocated, as well as the castration of scrub bulls.

The principal diseases are reported to be ANTHRAX, BLACKLEG and HAEMORRHAGIC SEPTICAEMIA. PIROPLASMOSIS also occurs and ANAPLASMOSIS is said to be more prevalent than is generally realised.

The most destructive arthropod parasite is the tórsalo fly (*Dermatobia hominis*). This has led to the abandoning of cattle keeping in some areas; it also attacks other domestic species and man. Research is urgently required into the ecology of the fly.

The tick *Boophilus microplus* is also very widespread, except where effective control is exercised.

The report contains a short section on grassland improvement and forage production. The most widespread and valuable grass is "Jaragua" (*Hyparrhenia rufa*), imported from Africa, which associates well in pastures with legumes of *Desmodium* spp. Recommendations for livestock improvement, in addition to those already mentioned, include introduction, testing and demonstration of legume forages, attention to pasture improvement and forage conservation, disease control and improved nutrition and breeding practices, as well as measures for the suppression of ticks and the tórsalo fly.

—T. LEACH.

U.S.A. (1947). **New York. Report of the New York State Veterinary College at Cornell University for the year 1946-1947** [DAY, E. E.] pp. 238. New York: State Veterinary College. **3013**

The staffing difficulties mentioned in last year's report were further aggravated by the increase in the number of new schools from three to seven. There is also a greatly increased demand for graduates in all branches of the profession and many more candidates than there are vacancies in the Colleges.

For three years a new curriculum has been in force. New courses added were nutrition, genetics, food hygiene, clinical pathological discussions. In the fourth year clinical work is the main subject.

A number of diagnostic laboratories are being operated by the College for the Department of Agriculture and Markets.

BRUCELLOSIS agglutination tests numbered 161,634; Brain examinations for RABIES were 739 positive, 481 negative and 63 brains were unfit for examination. Of those found to be positive 300 were of cattle, 236 foxes, 63 dogs, 18 cats, 10 horses, 2 pigs, 1 sheep and 10 other animals. The increase in the numbers of cattle diagnosed as positive is stated to be due to the payment of compensation by the State.

NEWCASTLE DISEASE appears to be firmly established; 90 outbreaks were confirmed. Specimens examined included 4,330 fowls, 728 turkeys, and 208 other birds of various species; 3,150 turkey blood samples were also examined.

Altogether the various poultry laboratories dealt with about 15,000 specimens.

The field laboratories for Education and Research in BOVINE MASTITIS, although not yet completed, were all in operation.

Details are given of animals treated. The total was 26,541, namely: The Ambulatory Clinic 17,350, The Large Animal Hospital Clinic 4,330, and The Small Animal Hospital Clinic 4,852. Altogether there were 1,353 horses, 16,282 cattle, 1,355 sheep, 2,699 pigs, 3,735 dogs, and 1,117 cats.—J. A. GRIFFITHS.

U.S.A. (1948). **Los Angeles County Livestock Department, California. Twenty-fourth Annual Report, fiscal year ending June 30th 1948.** [HURT, L. M.] pp. 50. Los Angeles, Calif: County Livestock Dept. [Mimeographed.] **3014**

In the accredited herds there were only 0·16% reactors to the tuberculin test. The figures since 1938-39, when reactors were 0·14%, had not exceeded 0·18%. The danger was the constant importation of cows from adjacent States and Counties and also uncontrolled native cattle. MASTITIS is being controlled by the use of penicillin.

ACTINOMYCOSIS is prevalent and is being treated by the stockmen by incising the swellings and applying iodine.

TRICHOMONIASIS has been diagnosed and is being kept under control.

Rabies is a difficult problem for stock-owners owing to the numbers of stray rabid dogs which may transmit the disease to cattle. Swine Fever is still the most serious disease of pigs in Los Angeles County.

Bacillary White Diarrhoea has caused a great deal of loss to poultrymen. Newcastle Disease has caused considerable loss during the year. Fowl Pox also is very prevalent.

The situation for the control of disease appears to be more difficult than is usual. Available pasture is gradually being reduced through overcrowding as more and more settlers come in and new urban areas arise.—J. A. Griffiths.

BOOK REVIEWS

Cappell, D. F. [Revised by.] (1951). **Muir's text-book of pathology.** pp. xx + 1090. London: Edward Arnold & Co. 6th Edit. 50s. **3015**

A brief notice will serve to draw attention to this sixth, new and revised, edition of this well-known excellent textbook of human pathology. Although the book has grown by some 90 pages of text, it retains its convenient size. The number of illustrations has also increased; some of the less good old ones have been dropped or replaced, and those now present form a first-rate series, showing very clearly what they are intended to show. The text is arranged on sound orthodox lines, general pathology being dealt with in 285 pages, and nearly 800 pages being devoted to systematic pathology. Recent work receives due and cautious attention, and selected references for further reading are given at the end of the book. There are occasional references to diseases of domestic animals; one that needs correction states that actinomycosis occurs especially in the tongue as well as in the jaw of cattle.—E. Cotchin.

Følger, A. F. (1951). Almindelig patologi for veterinaerstuderende og dyrlaeger. **[General veterinary pathology.]** pp. xi + 516. Copenhagen: Den. Kgl. Veterinaer- og Landbohøjskole. Kr. 63.00 **3016**

This book has been written in order to fill a gap in the series of veterinary textbooks in the Danish language. The author is Professor of Pathology at the Royal Veterinary and Agricultural College at Copenhagen and he has written this book especially for the needs of the students.

The book has chapters on causes of disease, malformations, degenerative diseases, progressive tissue changes, principles of immunity, inflammation and neoplasia. There are eight coloured figures and over 200 photographs or figures and there is a good index.

It must be difficult to decide what to include in general pathology. Actually this book contains many descriptive and pictorial items out of special pathology. It is therefore desirable that the author should produce a companion book on special veterinary pathology so that the whole subject can be evenly covered.

The volume under review is praiseworthy and seems to be about the right length, though of a size to make a formidable demand upon the student's capacity. High printing standards have been worked to, and the volume compares evenly with the best of any veterinary textbook of any country.—J. Edwards.

Smith, H. W. [Professor of Physiology, New York University College of Medicine.] (1951). **The kidney. Structure and function in health and disease.** pp. xxii + 1049. New York: Oxford University Press. 100s. **3017**

The task of producing a comprehensive account of the structure and function of the kidney in health and disease is a considerable undertaking but the author has attempted it mainly because of the charge that renal physiologists have abandoned the sick in order to pursue their own theories. It is true that the methods employed for the study of renal function are often too elaborate for general clinical application but nevertheless, as the author points out, no method is to be disdained if it can aid significantly in deciding the issue between life and death.

In Part I, a straightforward account is given of the anatomy and physiology of the normal kidney. Considerable attention is paid to the methods employed for the measurement of filtration rate, the conclusion being reached that inulin clearances in all species are identical with the filtration rate. Part II deals with such questions as the action of the antidiuretic and other hormones on the kidneys; the acid-base equilibrium between plasma and urine; and the excretion of electrolytes. Part III is concerned mainly with the control of the renal circulation; trophic and other factors related to renal function; and renal haemodynamics. The comparative physiology of the kidney in lower and higher vertebrates, elasmobranchii and teleostomi are also considered. Part IV deals with the disturbance of renal function seen in various diseased states such as congestive heart failure, essential hypertension, traumatic and toxic in-

juries as well as in disturbances of salt and water balance and in non-renal diseases such as eclampsia, Weil's disease and Cushing's syndrome. A final section is devoted to a consideration of diuretics.

It will thus be seen that the author has truly covered a vast field. For the non-specialist, however, the citation of so many authorities tends at times to confuse the issues and the reader is often left to draw his own conclusions without guidance from the author. There is no doubt that the book will become a standard work of reference and is one which all workers engaged upon a study of kidney function or dysfunction will have frequent need to consult.

—J. A. NICHOLSON.

FERRER, M. I. [Department of Medicine, College of Physicians and Surgeons, Columbia University, New York.] (1952). **Cold injury Transactions of the first Conference June 4-5 1951, New York.** [Sponsored by the Josiah Macy, Jr. Foundation.] pp. 248. New York: Josiah Macy, Jr. Foundation. $3.25. 3018

Injury caused by exposure to low temperature was the subject of this symposium. The discussion which is given practically *verbatim* hinged on five papers dealing with experimental studies on animals, homeokinesis, hypothermia and acclimatization.

In treatment of frost-bite there appears to be considerable doubt of the validity of the long standing warning regarding the danger of quickly warming a frost-bitten limb.

It is not possible to abstract a discussion which covered such a wide field. There is much of great interest to physiologists and clinicians.

—M.C.

REIFENSTEIN, E. C., Jr. [Edited by.] (1951). **Metabolic interrelations. Transactions of the third Conference, January 8-9, 1951** [Sponsored by the Josiah Macy, Jr. Foundation.] pp. 294. New York: Josiah Macy, Jr. Foundation. $4.00. 3019

This volume is a collection of fourteen papers given at the third Conference in New York in 1951, on Metabolic Interrelations. The discussions, by a group of eminent authorities in allied subjects, which followed each paper, are reported *verbatim* and make a valuable contribution to the report as a whole both by complementing the data given and by suggesting further lines of investigation. The papers were:— Resorption of bone (Bloom, W.); Some histochemical observations on the development of membrane bone (Bevelander, G. & Johnson, P. L.); Studies on the effect of alteration in the concentration of calcium in circulating fluids on the mobilization of calcium (Hastings, A. B.); Osteogenesis (McLean, F. C.); Osteogenetic potency and osteogenetic inductor substances of periosteum, bone marrow, bone grafts, fracture callus, and hyaline cartilage transferred to the anterior chamber of the eye (Urist, M. R. & McLean, F. C.); A further consideration of the effects of beryllium salts on *in vitro* calcification of cartilage (Gutman, A. B. & Yü, T. F.); Inhibition of endochondral calcification *in vitro* by beryllium and L-histidine (Hiatt, H. H. & Shorr, E.); Summary on osteogenesis (McLean, F. C.); Effects of pituitary factors and of thyroxin on skeletal morphogenesis in the rat (Asling, C. W., Simpson, M. E. & Evans, H. M.); The nature of bone and phosphate rock (Hendricks, S. B. & Hill, W. L.); Some considerations of the solubility of calcium phosphate (Dodge, H. C.); Observations on the role of phosphatase (Neuman, W. F., DiStefano, V. & Mulryan, B. J.); The effect of age and low phosphorus rickets on calcification and the deposition of certain radioactive metals in bone (Copp, D. H., Hamilton, J. G., Jones, D. C., Thompson, D. M. & Cramer, C.); Retention and turnover of radiocalcium by the skeleton of large rats (Singer, L. & Armstrong, W. D.); and Electron micrography of the bone (Robinson, R. A.). The book is amply illustrated.—CHARLOTTE M. WOOD.

WATERS, R. M. [Edited by.] (1951). **Chloroform. A study after 100 years.** pp. xiii + 138. Madison, Wis.: The University of Wisconsin Press. $2.75. 3020

When engaged upon a study of cyclopropane, workers in the Department of Anaesthesia, Wisconsin University were struck by the fact that if chloroform had been introduced within the last decade, the story of its use as an anaesthetic might have been quite different. It was decided, therefore, to study chloroform again by means of more modern methods, the results so far obtained being published in the present volume.

The drug was studied both experimentally in the laboratory and also clinically by observations made on over 1,000 hospital patients. In addition, simple methods for the estimation of chloroform in blood and respired atmosphere were devised. The supposed deleterious effects of chloroform on the liver were studied in dogs repeatedly anaesthetized with the agent, but no differentiation could be detected in liver sections taken from these animals and normal dogs; neither was a deleterious effect upon kidneys observed, nor was an instance of delayed chloro-

form poisoning recorded. It is pointed out, however, that severe damage to the liver and kidneys has been known to follow chloroform administration which may in some way be related to the nutritional state of the patient. With regard to the cardiovascular system, in dogs chloroform reflexly affects cardiac automaticity and depresses the myocardium; it also causes peripheral vasomotor paralysis. Over dosage or maladministration readily produce ventricular depression leading to ventricular arrest. When properly administered, however, dogs have been maintained under surgical anaesthesia for periods up to 60 minutes without any change in the E.C.G. records. It could not be demonstrated mathematically that the probability of death or serious post-operative complications is higher with chloroform than with any other drug, but the fact is stressed that chloroform is a very potent drug so that there is the necessity for the very fine control of the strength of the vapour used. Chloroform does not stimulate respiration and a sudden increase in the concentration administered easily leads to cardiac depression. It is, therefore, easy to give an overdose and the most desirable advance would be the discovery of a means of vaporizing chloroform under absolute control.

Whilst the object of this has been to study chloroform as an anaesthetic for man, in view of the fact that as an anaesthetic for horses chloroform has stood the test of time, it might be of considerable interest to include a study of the effects of the drug in this animal in the further work which is contemplated. However, the present volume contains information which should be in the hands of all veterinary surgeons who use chloroform as an anaesthetic for animals.—J. A. NICHOLSON.

SLESSER, C. [Director, Division of Technical Information and Declassification Service, New York Operations Office.] [Editer by.] (1951). **Preparation, properties and technology of fluorine and organic fluoro compounds.** pp. xxiii + 868. New York: Toronto: London: McGraw-Hill Book Company, Inc. $10.50. 3021

This volume is one of a series prepared as a record of the reseach work under the direction of the Manhattan Project and the Atomic Energy Commission. Recent significant findings in the fields of fluorine and fluorocarbon technology are presented. Materials of extreme chemical inertness were required to contain the corrosive, gaseous uranium compound UF_6 used in the separation of the isotope U^{235} from natural uranium, the most effective being completely fluorinated hydrocarbon compounds. In the 40 chapters the following are described:- the large scale manufacture of fluorine, including cell construction, electrolyte components, conditions of operation, and special engineering features; methods of handling fluorine, including purification and compression into cylinders, removal from waste gases, and general health and safety precautions; preparation of new fluoro-organo compounds of chlorine by complete fluorination of organic compounds using fluorine carriers; preparation and properties of products obtained by polymerizing chlorotrifluoroethylene; and chemical and physical properties of various fluorocarbon compounds.

These are many diagrams and tables throughout the book; at the end there are Appendix A—Nomenclature, Appendix B—Present Professional Addresses of Individual Contributors and an index.—E.M.J.

MACKENZIE, C. G. [Edited by.] (1951). **Biological antioxidants. Transactions of the fifth Conference November 30-December 1, 1950, New York, N.Y.** [Sponsored by the Josiah Macy, Jr. Foundation.] pp. 229. New York: Josiah Macy, Jr. Foundation. $3.75. 3022

The chapters are in the form of *verbatim* reports of short opening remarks followed by general discussion. The matter discussed is highly specialized and as such provides stimulating reading for other specialists in the various fields.

The chapters cover the following subjects:- the electronic effects produced in chemical substances by irradiation: the physical effects of radiations upon animals: the hypothesis that the primary biological action of radiations is upon the biochemically important sulphydryl system: mutation effects produced upon bacteria by irradiation and by use of irradiated broths: the hypothesis that organic peroxides produced by ultra-violet irradiation are responsible for mutation effects: and the importance of free radical effects in normal and pathological (cacinogenic) metabolic processes.—R. MARSHALL.

WEICHERT, C. K. [Professor of Zoology. University of Cincinnati.] (1951). **Anatomy of the chordates.** pp. vii + 921. New York: Toronto: London: McGraw-Hill Book Company, Inc. 1st Edit. 68s. 3023

The aim of this book is to review the anatomy of a wide range of animals. It may be argued that such an endeavour is beyond the scope of a single volume, unless only the barest of outlines is given. The author has, however, tackled this problem by selecting a main theme

that runs throughout the text; the emphasis placed on the anatomy of evolution makes this work an interesting addition to the publisher's series of books for the student of general zoology, comparative anatomy and embryology.

Part I deals with the classification of the chordates and their place in natural history. Part II is a review of the organ systems of the vertebrates. The factual information given here is amplified from the point of view of an environment background in Part I. Part III takes the anatomical story a little deeper with references to four representative chordates, the marine lamprey, the spiny dogfish, the mud puppy (*Necturus maculosus*) and the cat-species commonly employed in zoological laboratory classes. In the case of the cat it may be said that the information presented is too superficial to be of great value to those interested in the particular study of that species; it is nevertheless useful as an introduction to mammalian form, which after all is the main purpose. Furthermore this chapter is still one of the few accouts of the anatomy of the cat to be found in the literature. Most chapters end with a short summary, quite adequate, and the book is concluded with a summary of the phylum characteristics and advances.—C. W. Ottaway.

Rooney, J. R. (1951). **Guide to the dissection of the horse.** pp. v + 183. New York: Cornell Cooperative Society. **3024**

Few dissection guides are designed to place emphasis on regions of vocational importance, but this booklet—produced primarily for use at the New York State Veterinary College—will be of value to Schools which practice this procedure. Constant references are made to the living animal, a necessary pre-requisite for such emphasis, and diagrams including a few showing the areas of cutaneous innervation are included.

—R. N. Smith.

Olszewski, J. [Assistant Professor of Neuroanatomy, Department of Neurology & Neurosurgery, McGill University.] (1952). **The thalamus of the *Macaca mulatta*. An atlas for use with the stereotaxic instrument.** pp. 93. Basle, Switzerland: New York, U.S.A.: S. Karger. Swiss Fr. 78. **3025**

Investigators of the structure and function of the central nervous system make extensive use of the architecture of histological sections in orientating the site of a stimulus or a lesion in the brain. To standardize these cyto- and myeloarchitectonic methods, atlases are now being produced as guides, this particular one being devoted to the thalamus of the monkey. Nuclei are carefully described with references to the many excellent plates. The nomenclature is that used by Walker, A. E. in his book "The primate thalamus". The uses of radiography and of a stereotaxic instrument are also explored in an attempt to make more exact localization of surgical interference on the brain.

—R. N. Smith.

Bourne, G. H. [Edited by.] (1951). **Cytology and cell physiology.** pp. xvi + 524. Oxford: The Clarendon Press. 2nd. Edit. 50s. **3026**

Since this book was first published the rapid advances in the fields covered have necessitated the publication of a new edition. Two new chapters have been included: one by Honor B. Fell on Histogenesis in tissue culture and another by E. M. Willmer on Some aspects of evolutionary cytology. The section on Pathological aspects of cytology by R. J. Ludford has been appreciably enlarged.

Parts of this book will be of value to any worker whose field of study includes some aspect of cytology, for it gathers together a great deal of information which is widely scattered through the literature of what has come to be a broad subject. This is particularly noticeable in the chapter on Cytological techniques which includes concise descriptions of the more recent methods of microscopy.

The type, paper and binding are of a good standard and a number of very beautiful photomicrographs are reproduced.—L. P. Joyner.

Hill, H. (1952). **Clean milk.** pp. vii + 115. London: H. K. Lewis & Co. Ltd. 7s. 6d. **3027**

The author stresses the point that the production of clean milk does not primarily depend on costly buildings, elaborate equipment or an abnormal employment of labour; in fact, while advocating the best conditions possible in the circumstances, he asserts that "clean milk can be produced in unsatisfactory premises if care is exercised, particularly if methods are good".

One is struck by the fact that in this volume the author, wisely we think, sticks to the title of "Clean Milk" and does not introduce accessory subjects, agricultural or other, such as breeds and types of dairy cattle, their diseases, details of building construction and so on, about which many writers on this subject know but little.

The book is largely confined to methods of production and above all, it is stressed that, while every detail is important, the thorough cleansing and sterilization of dairy equipment

is, perhaps, of most importance and failure in this is all too frequently responsible for milk unsatisfactory in cleanliness and of low keeping qualities.

We note, however, that on page 106, under laboratory tests, in discussing the plate count, the author states that this test has now fallen into disfavour as a milk test but is still retained for the examination of churn and equipment rinses and for swab examinations. It must have escaped his notice that the plate count method is still carried out in Scotland under "The Milk (Special Designations), (Scotland) Order 1951" for all "certified", "tuberculin-tested" and "standard" milk and the coliform test, which he also states has fallen into disuse in recent years, although he admits that many Local Authorities still employ it, is the official test under the above quoted Order.

There are ten chapters including a short summary and also a preface and an alphabetical index. The book is clearly written, describing in considerable detail all the methods of production in language which any one can understand; it is concise and to the point and the printing is large and clear. It is to be hoped that it will achieve the popularity amongst producers that it would appear to deserve.—D. S. RABAGLIATI.

ANON. (1951). **Hormones: a survey of their properties and uses.** pp. xii+220. London: The Pharmaceutical Press. 35s. **3028**

This useful book comprising eight chapters discusses the history, physiology, chemistry of the non-steroid hormones, chemistry of the steroid hormones, standardization, action and uses, pharmacy and commercial preparations in common use. There are lists of references at the end of most of the chapters and there is a general bibliography at the end of the book, followed by an index. Contributing authors include H. E. Dale, C. W. Emmens, D. H. Hey and T. D. Whittet; there are 34 illustrations and 14 tables. Throughout the book organic structural formulae are used in the description of the hormones, and in the indication of synthetic hormonal preparations. Excellently printed and strongly bound, this book will be a welcome addition to the libraries of pharmacists, practitioners and students.

—E.M.J.

MASON, I. L. (1951). **A world dictionary of breeds types and varieties of livestock.** pp. 272. Farnham Royal, Nr. Slough: Commonwealth Agricultural Bureaux. Technical Communication No. 8 of the Commonwealth Bureau of Animal Breeding and Genetics. 30s. **3029**

The names which have been used for the various breeds of horses, cattle, sheep, pigs, goats, asses and buffaloes throughout the world are listed alphabetically under each species. Wherever possible an English name is recommended for each breed and synonyms and foreign names are given. In many cases brief notes concerning the salient breed characters, origin, relationship to other breeds etc. are given. References to abstracts which have appeared in *Animal Breeding Abstracts* are given against most of the entries.

In addition to the purely dictionary portion there is a geographical section in which statistics of livestock populations, numbers of different breeds and references to the literature are given for each country, or for groups of countries in the case of Asia.

This pioneer effort is a starting point in an endeavour to bring order out of chaos and is sure to be appreciated.—M.C.

ANON. (1952). **Gazetteer of agricultural and forestry research stations in the British Commonwealth 1952. Including a list of such stations in the Republic of Ireland.** pp. xix+517. Farnham Royal: Executive Council of the Commonwealth Agricultural Bureaux. 30s. **3030**

The agricultural research stations throughout the British Commonwealth are listed and particulars of each station are given, namely: location (including latitude and longitude); climate; altitude; soils; crops; subjects of research; and postal address. There are two indices (a) of research stations and (b) of subjects of research. Research stations in the Republic of Ireland are also included.—M.C.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

CAULLERY, M. (1950). Le parasitisme et la symbiose. **[Parasitism and symbiosis.]** pp. 358. Paris: G. Doin & Cie. 2nd. Edit.

HABEL, R. E. (1951). **Guide to the dissection of the cow.** pp. vi+127. Ithaca, New York: Cornell Cooperative Society. 2nd. Edit. $1.00.

WILLIAMS, R. T. [Edited by]. (1951). **The biochemistry of fertilization and the gametes. A symposium held at The London School of Hygiene and Tropical Medicine on 17 February 1951. Biochemical Society Symposia No. 7.** pp. 66. Cambridge: University Press. 9s. 6d.

Printed in Great Britain by CHARLES BURRELL & SON, Chertsey

INDEX VETERINARIUS

The publication of *Index Veterinarius* commenced with the indexing of the literature of 1933. It is a complete index of current publications relating to veterinary research, public health, administration, education and other aspects of veterinary science.

The latest list of the publications searched for this purpose was circulated with the *Veterinary Bulletin,* **Vol. 22, No. 1.**

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Nutrition Abstracts and Reviews	Commonwealth Bureau of Animal Nutrition, Aberdeen.

Annual subscription to the first three is 35s. (with a special reduction of 20 per cent. for orders received direct from subscribers in Great Britain, the Dominions and Colonies) ; the annual subscription to Nutrition Abstracts and Reviews is 60s.

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TECHNICAL COMMUNICATIONS, ETC.

Commonwealth Bureau of Animal Health, Weybridge.		
	Review Series No. 2. Modes of spread of *Streptococcus agalactiae* infection in dairy herds. A report on co-ordinated observations by the Agricultural Research Council of the United Kingdom. May, 1944	3s. 0d.
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Commonwealth Bureau of Animal Breeding and Genetics, Edinburgh.		
	The semen of animals and its use for artificial insemination. By James Anderson. Spring, 1945	7s. 6d.
Commonwealth Bureau of Pastures and Field Crops, Aberystwyth.		
36.	The grasslands of Latin America. By Miss G. M. Roseveare. Late 1946 ...	20s. 0d.
38.	Advances in grassland husbandry and fodder production. Second symposium. Late 1946	6s. 0d.
Commonwealth Bureau of Plant Breeding and Genetics, Cambridge.		
	The new genetics in the Soviet Union. By P. S. Hudson and R. H. Richens. May, 1946	6s. 0d.
Commonwealth Bureau of Soil Science, Harpenden.		
43.	Land classification for land-use planning. June, 1946	4s. 0d.
Commonwealth Mycological Institute, Kew.		
	An annotated bibliography of medical mycology, 1945. 1946	5s. 0d.

Subscriptions

All correspondence regarding subscriptions to journals and sales of occasional publications should be addressed to, and cheques made payable to :—Central Sales Branch (Commonwealth Agricultural Bureaux), Farnham House, Farnham Royal, Nr. Slough, Bucks.

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